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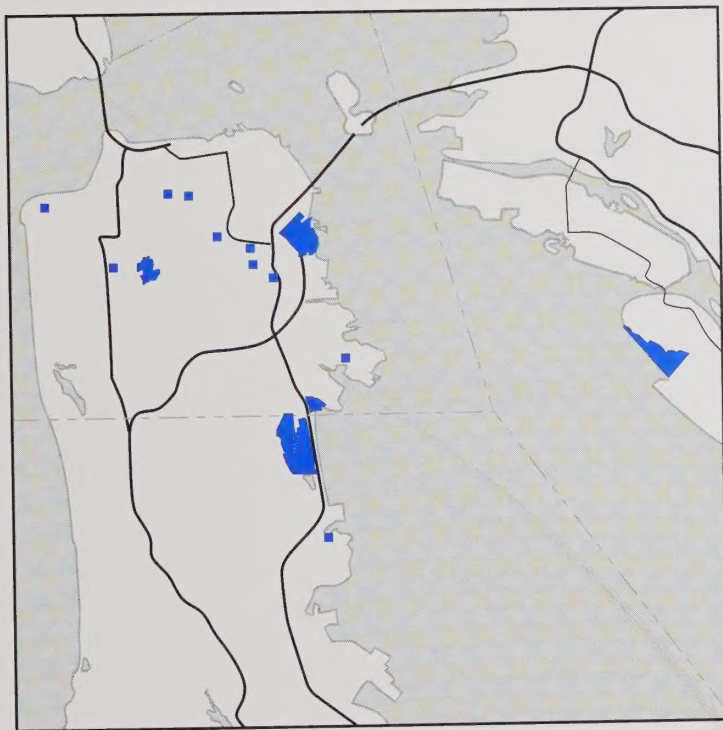
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EIR

VOLUME II

6/18/96

CALIFORNIA SAN FRANCISCO MARCH 1996



DRAFT ENVIRONMENTAL IMPACT

REPORT

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VOLUME II



PREPARED BY

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SAN FRANCISCO, CA 94111

UNIVERSITY OF CALIFORNIA SAN FRANCISCO MARCH 1996

UCSF

LONG RANGE DEVELOPMENT PLAN



Draft Environmental Impact Report
University of California San Francisco
Long Range Development Plan
March 1996

SCH No. 95123032

Draft EIR Review Period:
March 29, 1996 - May 28, 1996

Comments on the Draft EIR may be sent to:

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San Francisco, CA 94143-0286

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Introduction

Chapter 1: Introduction

A. LEAD AGENCY

The Regents of the University of California (The Regents) is the Lead Agency for the project evaluated in this Environmental Impact Report (EIR). Under the California Environmental Quality Act of 1970 (CEQA), the public agency with the greatest responsibility for supervising or approving the project or the first public agency to make a discretionary decision to proceed with a proposed project should ordinarily act as the “Lead Agency” (*CEQA Guidelines* 15051[b]¹). The Lead Agency is responsible for preparing this EIR and has primary responsibility for approving or carrying out the project.

B. PROPOSED ACTION UNDER REVIEW – THE UCSF 1996 LRDP

Each campus in the University of California system is required periodically to examine its academic goals and to devise physical plans to support them in the form of a Long Range Development Plan (LRDP), which is defined as a “physical development and land use plan to meet the academic and institutional objectives for a particular campus.”² The University of California San Francisco (UCSF) proposes the 1996 LRDP to guide future physical development of UCSF through the academic year 2011/12. The goal of the 1996 LRDP is to meet current and future space needs for the maintenance and growth of UCSF by providing space to relieve the excessive crowding at the Parnassus Heights site, to provide new space for existing programs and new programs, and to consolidate at least some of UCSF’s scattered academic and administrative support units.

UCSF has identified a total space need of about 3.4 million gross square feet (gsf), not including parking. This represents an approximate 68 percent increase in space over current UCSF uses. The 1996 LRDP proposes to allow UCSF to meet this space need in two general ways: 1) by reinvesting in existing UCSF sites and facilities as a consequence of implementing ongoing projects with approved environmental reviews at Parnassus Heights, UCSF/Mount Zion and Laurel Heights, and carrying out necessary infrastructure, code and seismic improvements at all existing sites; and 2) by acquiring sufficient land and building a major new campus site to provide additional space.

C. PURPOSE OF THE EIR

CEQA requires agencies to prepare EIRs “as early as feasible in the planning process to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment” (*CEQA Guidelines*, §15004[d]). Further, CEQA requires that an EIR be prepared in connection with all University of California Campus LRDPs (Public Resources Code, § 21080.09[b]). On December 14, 1995, UCSF

published a Notice of Preparation (see Appendix 1) in which it determined that the preparation of an EIR was appropriate to ensure proper review of potentially significant impacts stemming from implementation of the proposed LRDP. Primary issues to be addressed in the EIR were determined to be:

- consistency of proposed uses with existing land uses;
- increased traffic and changes to existing traffic patterns;
- changes in air quality;
- increased use of hazardous materials;
- increased exposure of people or structures to geologic hazards; and
- increased demand for public services, utilities and infrastructure.

Other topics to be covered in this EIR include noise; hydrology and water quality; vegetation and wildlife; visual quality; cultural resources; population, employment, and housing; and growth inducement.

CEQA also requires EIRs to identify and analyze alternatives to the proposed project that could feasibly attain the basic objectives of the project (*CEQA Guidelines* 15126[d]). The analysis of these alternatives compares the environmental merits of the proposed LRDP and the alternatives. Chapter 15 of this EIR provides a description and analysis of alternatives to the 1996 LRDP.

UCSF has prepared this EIR on the 1996 LRDP for the following purposes:

- to satisfy the requirements of CEQA;
- to inform the general public, local community, responsible and interested public agencies, and the University regarding the nature of the 1996 LRDP, its possible environmental effects, possible measures to mitigate those effects, and alternatives to the 1996 LRDP;
- to enable The Regents to consider environmental consequences when deciding whether to approve the 1996 LRDP;
- to provide a basis for preparation of tiered environmental documents pursuant to the requirements of Section 15385 of the CEQA Guidelines and Public Resources Code Sections 21083 and 21087; and
- to provide project-level environmental analysis for the following 1996 LRDP proposals to be implemented at UCSF's Parnassus Heights site: the demolition and replacement of the Aldea San Miguel Family Student Housing; the demolition and replacement of the MR IV building; and the demolition and replacement of the UC Hall building. These projects are anticipated to occur in the near term of the LRDP planning period, prior to other Parnassus Heights projects.

This EIR, State Clearinghouse (SCH) No. 95123032, prepared in accordance with CEQA, is a Program EIR. A Program EIR, as described in Section 15168(a) of the *CEQA Guidelines*, assesses the impacts of a series of actions that may be characterized as one large project and are related in at least one of the following four ways:

- geographically;
- as logical parts in a chain of contemplated actions;
- in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
- as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

The LRDP evaluated in this EIR satisfies each of these criteria.

D. ANALYTIC APPROACH

In order to ensure that foreseeable environmental effects from all LRDP proposals are evaluated, this EIR assumes that all development under the 1996 LRDP would occur during the LRDP planning period. For purposes of analysis in this EIR, full buildout under the LRDP is assumed to occur by the year 2010. In fact, full buildout is unlikely to occur before 2010. Therefore, this EIR provides a conservative analysis, and the impacts evaluated in this EIR represent the maximum extent of adverse environmental impacts that could occur as a result of development allowed under the 1996 LRDP.

1. ASSESSMENT OF EXISTING CONDITIONS

This EIR describes the existing physical environment of the area where LRDP activities could occur in order to establish baseline conditions from which the significance of LRDP impacts may be evaluated. The subsections in each chapter provide a description of existing conditions (environmental setting) at the relevant UCSF sites for that respective environmental topic. Chapter 3 provides a regional setting for each environmental topic, and the topics in Chapters 4 and 12 provide site-specific setting information as necessary.

2. EVALUATION OF LRDP IMPACTS COMPARED TO EXISTING CONDITIONS

This EIR analyzes adverse impacts that the LRDP could have on the existing environment and evaluates the level of significance of those impacts. As required by CEQA, the LRDP impacts are evaluated in the context of existing conditions and the context of other growth projected to occur by the 2010 buildout year, so that cumulative effects are analyzed.

Chapter 3, Regulatory Background, Regional Setting, and Methodology, includes significance criteria for each environmental topic.

3. MITIGATION OF PROJECT IMPACTS

Where the EIR analysis concludes that significant adverse impacts would occur from implementation of the 1996 LRDP, mitigation measures that would eliminate those impacts or reduce them to a level of insignificance are identified. In some cases, impacts would not be mitigated to a level of less than significant and the impacts would then be identified as unavoidable significant impacts.

E. EIR ORGANIZATION

This EIR includes a Summary and 16 chapters.

Chapter 1, Introduction, describes the regulatory context that requires the preparation of this EIR and explains the document structure.

Chapter 2, Project Description, describes the proposed 1996 LRDP and certain analytic assumptions underlying the LRDP.

Chapters 3 to 15 provide the environmental analysis of development under the 1996 LRDP for each of the existing sites occupied by UCSF, and for the potential locations for a major new campus site, termed a Major New Site in this EIR. The following environmental topics are covered:

- Land Use
- Traffic/Circulation/Parking
- Air Quality
- Noise
- Hazardous Materials
- Geology and Seismicity
- Hydrology and Water Quality
- Vegetation and Wildlife
- Public Services
- Utilities and Infrastructure
- Visual Quality

- Cultural Resources
- Population, Employment and Housing
- Growth Inducement

Chapter 3, Regulatory Background, Regional Setting, and Methodology, describes by topic general existing conditions that are relevant to the existing sites occupied by UCSF and all of the potential Major New Sites. Information pertinent to existing conditions includes: 1) any environmental regulations that would apply to development under the 1996 LRDP regardless of site location; 2) a description of the regional setting, which is generally the greater San Francisco Bay Area; and 3) a description of the methodology used to evaluate the significance of environmental effects.

Chapters 4 - 11 contain the environmental analysis of development under the 1996 LRDP for each of UCSF's existing sites, with particular emphasis on LRDP proposals at the Parnassus Heights site that require project-level environmental analysis, including the demolition and replacement of the Aldea Student Housing, and the MR IV and UC Hall buildings. Other UCSF sites are covered briefly by reference to previously approved development plans that have completed environmental review.

- Chapter 4: Parnassus Heights
- Chapter 5: UCSF/Mount Zion
- Chapter 6: San Francisco General Hospital
- Chapter 7: Veterans Affairs Medical Center
- Chapter 8: Laurel Heights
- Chapter 9: Mission Center Building
- Chapter 10: Other San Francisco and Peninsula Sites
- Chapter 11: Fresno Medical Education Program

Chapter 12, Major New Site, provides environmental analysis of developing a Major New Site at Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay. Chapter 12 is organized by environmental topic. Each topic begins with an analysis of environmental effects of the Major New Site that would be generic to any site, referred to as the "Development Scenario" impacts. These effects would occur regardless of site, size or jurisdiction. Each Chapter 12 topic section also includes the site-specific setting, methodology, impacts and mitigation measures for each potential site.

Chapter 12 also includes a summary section comparing the environmental effects of the LRDP at each of the potential Major New Sites.

Chapter 13, Overall LRDP Impacts Summary, briefly discusses certain environmental topics where development occurring under the 1996 LRDP at various UCSF sites could have environmental effects across more than one site.

Chapter 14, Summary of Other CEQA Effects, is the summary of growth-inducing effects of the LRDP, unavoidable significant effects, significant irreversible changes and effects found not to be significant.

Chapter 15, Alternatives, is the analysis of alternatives to the 1996 LRDP. These include No Development Alternative, No New LRDP Alternative, Reduced Project Alternative and Two-Satellite Alternative. This chapter also contains a description of other alternatives sites considered and of the screening process which led to the selection of the three potential Major New Sites.

Chapter 16, Report Preparation, lists the authors of the EIR.

The EIR Appendices provide background information and technical data, organized by topic area.

F. STANDARDS OF SIGNIFICANCE USED IN THIS DOCUMENT

Various standards are used to determine the significance of impacts associated with implementation of the 1996 LRDP. Separate standards of significance are used for each environmental topic addressed in this EIR. These standards are listed below by topic.

1. LAND USE

Pursuant to the University of California's constitutional authority, development and uses on property owned or leased by the University that are consistent with the University's mission are not subject to local land use regulation. However, UCSF uses local land use policies as planning guidelines, and as the basis for determining land use and planning impacts under CEQA. Further, UCSF cooperates with local planning agencies in matters of mutual concern. Based on these policies, and for purposes of this EIR, the LRDP would have a significant adverse land use or planning impact if the proposed LRDP development and uses would:

- substantially conflict with the adopted environmental goals, plans and policies of the local planning jurisdiction;
- substantially conflict with the use designations, height and bulk, and density restrictions of local zoning; or
- be substantially incompatible with existing land uses.

2. TRAFFIC/CIRCULATION/PARKING

The LRDP would have a significant adverse impact on traffic, circulation and parking conditions if the proposed LRDP development and uses would:

- cause the corridor level of service to drop during the peak hour below acceptable levels of service based on local traffic standards, or would cause a corridor already operating at an unacceptable level of service to further deteriorate during the peak hour to an extent determined to be significant by local traffic standards (if no local traffic standard exists, a drop in service level below D, or if service levels are already below D, a deterioration of 0.01 or more in volume-to-capacity (v/c) ratio, will be considered significant);
- generate projected parking demand that would exceed the proposed parking supply;
- generate projected transit demand that transit systems would not be able to accommodate; or
- cause substantial bicycle/pedestrian/vehicle conflicts.

3. AIR QUALITY

A project would be considered to have a significant adverse impact on the environment if it would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollution concentrations. The Bay Area Air Quality Management District (BAAQMD) recommends a specific set of criteria for judging the significance of air quality effects of individual development projects which require permits from BAAQMD. For purposes of this EIR, UCSF is applying the BAAQMD criteria to entire UCSF development sites (e.g., the Parnassus Heights site), which is a more conservative approach than BAAQMD's project-specific approach. Therefore, the LRDP would have a significant adverse impact on the environment if the proposed LRDP development and uses would:

- cause total criteria pollutant emissions at or from any UCSF site (i.e., from both stationary and mobile sources) to equal or exceed the following thresholds:

Reactive Organics	80 lb/day
Nitrogen Oxides	80 lb/day
Particulate Matter (PM ₁₀)	80 lb/day
- induce mobile source carbon monoxide (CO) emissions at or from any UCSF site which would cause or substantially contribute to violations of the federal or state ambient CO standards; or
- expose receptors to toxic air contaminant emissions at or from stationary sources at any UCSF site that 1) result in a cancer risk greater than ten cancer cases per

one million people exposed in a lifetime; or 2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.

No standards of significance have been adopted by any regulatory agency with regard to, and no permitting procedure exists for, toxic air emissions from mobile sources or with regard to cumulative toxic air contaminant emissions from mobile and stationary sources, and therefore none are used here.

4. NOISE

Although UCSF is not subject to general plan standards or local noise ordinances, the standards set forth in such plans and ordinances are the basis for setting standards of significance for noise impacts. Because the relevant noise exposure standards vary among local jurisdictions, the criteria determining the significance of 1996 LRDP noise impacts will vary depending on the local jurisdiction of each existing or proposed LRDP site. These different criteria are summarized in the Site-Specific Standards and Methods section for each LRDP site. For purposes of this EIR, the 1996 LRDP would be considered to have a significant noise impact if the proposed LRDP development and uses would:

- require construction activities at any UCSF site which would not comply with local noise standards and requirements; or
- generate operational noise effects at or from any UCSF site in excess of noise levels set forth in local general plans or ordinances for adjacent areas based on their use, or if ambient noise levels in areas adjacent to LRDP development already exceed local noise levels set forth in local general plans or ordinances for such areas based on their use, contribute to an increase in average daily noise levels (Ldn) of 3 dBA or more at property lines.

5. HAZARDOUS MATERIALS

The LRDP would have a significant adverse impact on the environment if proposed LRDP development and uses would:

- create a substantial public health and safety hazard through release of emissions or undue risk of upset of hazardous materials related to human and environmental health and safety;
- involve the use, production or disposal of materials in a manner that poses a hazard to people or animal or plant populations in the area affected;
- interfere with emergency response plans or emergency evacuation plans; or ³
- fail to comply with applicable laws and regulations.⁴

6. GEOLOGY AND SEISMICITY

The LRDP would have a significant adverse impact on the environment if the proposed LRDP development and uses would:

- result in exposing people or structures to increased risk related to major geologic hazards, such as substantial surface rupture, groundshaking, liquefaction, slope failure or landslides;
- expose people to structural hazards in an existing building rated Poor, or Very Poor, under the University's seismic performance rating system, or substantial nonstructural hazards;
- locate structures in an Alquist-Priolo Earthquake Fault Zone; or
- locate structures on soils that are likely to collapse or subside, or that exhibit expansive characteristics that could substantially damage foundations or structures.

7. HYDROLOGY AND WATER QUALITY

The LRDP would have a significant adverse impact on hydrology and water quality if the proposed LRDP development and uses would:

- create substantial flood hazards by increasing the quantity and/or rate of runoff;
- be located within a 100-year flood plain or in flood-prone areas;
- substantially deplete surface or groundwater resources;
- substantially degrade surface or groundwater quality;
- substantially increase erosion or sedimentation; or
- fail to comply with applicable water quality laws and regulations.

8. VEGETATION AND WILDLIFE

The LRDP would have a significant adverse impact on vegetation and wildlife resources if the proposed LRDP development and uses would:

- result in violation of state or federal endangered species regulations, including "take" of a population of a state- or federally-listed threatened or endangered species;
- result in substantial reduction in numbers of, restriction in range for, or loss of habitat for a population of special status species, including species that are fully

protected under the State or Federal Endangered Species Act, identified as a candidate Category 1 or 2 under such Acts, proposed for federal listing as threatened or endangered, or considered "rare" under *CEQA Guidelines* Section 15380 or by the California Department of Fish and Game;

- create substantial interference with the movement of any resident or migratory fish or wildlife species;
- substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; or threaten to eliminate a plant or animal community (CEQA Section 15065);
- result in substantial disturbance of wetlands, marshes, riparian woodlands and other significant wildlife habitat; or
- result in violation of local tree protection ordinances including damage or removal of heritage, landmark, or native oak trees of the specified diameter.

9. PUBLIC SERVICES

The LRDP would have a significant adverse impact on public services if the proposed LRDP development and uses would:

- require additional service resources to avoid reductions in service elsewhere, thus significantly affecting the physical environment, including human health and safety;
- require a substantial increase in the demand for police or fire service such that meeting the demand would require additional staff, vehicles, equipment or stations in excess of what is planned by local jurisdictions;
- create a substantial increase in local solid waste generation that would require the expansion of solid waste disposal facilities beyond foreseeable capacity; or
- generate a substantial increase in student enrollments that causes secondary environmental impacts resulting from the construction of new classrooms or new schools or from increased busing.

10. UTILITIES AND INFRASTRUCTURE

The LRDP would have a significant adverse impact on utilities and infrastructure if the proposed LRDP development and uses would:

- use potable water in a wasteful manner or increase consumption of potable water to the extent that substantial expansion of water supply, treatment or distribution facilities is required;

- require substantial expansion of wastewater treatment and distribution capacity beyond that planned by local jurisdictions;
- result in the use of large amounts of energy, oil or natural gas in a wasteful manner, or create energy demand that exceeds the energy supplier's existing and planned energy capacity; or
- require the development of new sources of energy.

11. VISUAL QUALITY

The LRDP would have a significant adverse impact on visual quality if the proposed LRDP development and uses would:

- create a substantial, demonstrable negative aesthetic effect;
- compromise preservation of important public views;
- produce light and glare that may substantially disturb activities in adjacent areas; or
- substantially reduce sunlight or increase shadows in public open spaces.

12. CULTURAL RESOURCES

The LRDP would have a significant impact on cultural resources if the proposed LRDP development and uses would:

- destroy or otherwise substantially harm the integrity of a significant prehistoric or archaeological site, a property of historic or cultural significance to a community or ethnic or social group, or a paleontological site, except as part of a scientific study (a significant cultural resource is one that would meet the criteria in *CEQA Guidelines*, Appendix K); or
- destroy or otherwise harm a formally designated landmark of cultural or historical importance.

13. POPULATION, EMPLOYMENT, AND HOUSING

The Regulatory Background of this EIR, Chapter 3, notes that population, employment and housing changes, in and of themselves, are not normally considered to be significant impacts (substantial, adverse impacts on the physical environment) under CEQA. However, CEQA does allow inclusion of these effects as indicators and influences on other impacts. Therefore, this EIR section quantifies and describes the magnitude of such potential changes. The potentially

significant physical environmental impacts associated with changes in population, employment and housing are analyzed in other sections of this EIR (e.g., traffic, public services, air quality). For purposes of this EIR, LRDP impacts on population and housing are considered significant if the proposed LRDP development and uses would:

- induce substantial growth or concentration of population;
- displace a large number of people; or
- create a demand for housing which could not be accommodated within the market area in which the facilities or site are located.

G. AGENCY USE

CEQA requires public agencies to avoid or minimize the environmental damage which could result from proposed projects under their jurisdiction. This requires that the public agency balance a variety of public objectives, including environmental, economic and social considerations. The Regents must consider the information in this EIR, along with any other relevant information, when making a decision to approve the 1996 LRDP. As part of that decision, CEQA requires that findings be made for each significant environmental effect of the LRDP identified in this EIR. These findings set forth the underlying rationale used by The Regents in its approval or denial of the 1996 LRDP. The findings explain whether and why mitigation measures and project alternatives have been accepted or rejected.

Where significant effects from the LRDP are unavoidable, CEQA requires The Regents to prepare a statement of overriding considerations if it approves the 1996 LRDP. A statement of overriding considerations indicates that even though the EIR indicates that a project would result in one or more unavoidable significant impacts, economic, social or other stated benefits are sufficient to warrant project approval. Such a statement would explain The Regents' decision to proceed with approval of the 1996 LRDP despite any unavoidable significant adverse environmental impacts.

H. ENVIRONMENTAL REVIEW PROCESS

The review process for the 1996 LRDP began with a Notice of Preparation (NOP), which was prepared and circulated for a 30-day period of public review and comment beginning on December 14, 1995. A copy of the NOP is included in this document as Appendix 1. One public scoping meeting was held on January 23, 1996. It provided an opportunity for public comment on all LRDP-related planning and environmental issues. This Draft EIR was publicly circulated beginning on March 29, 1996 for a 60-day period of review and comment by the public and other interested parties, agencies and organizations. All documents referenced in this EIR are available for review at the address below, during normal weekday business hours. The public review period concludes at 5:00 pm on May 28, 1996. Comments relating to the Draft EIR may be presented orally during the public hearing on May 20, 1996 at 7:00 pm at the UCSF Laurel Heights auditorium, 3333 California Street in San Francisco. All written comments or questions about the Draft EIR should be addressed to:

Michelle Schaefer, Environmental Coordinator
UCSF Campus Planning
1855 Folsom Street, Suite 566
San Francisco, CA 94143-0286
(415) 476-9627

Following the public hearing on this EIR and after the close of the written public comment period, responses to written and oral comments received on the Draft EIR will be prepared and published in a supplement to this document. The Final EIR (comprised of this Draft EIR and the published supplement containing comments received on this Draft EIR and the responses to those comments) will then be considered by The Regents in a public meeting and will be certified by The Regents if it is determined to be in compliance with CEQA. Following certification of this EIR, the 1996 LRDP will be considered for approval by The Regents. The EIR certification and 1996 LRDP approval are normally incorporated into one item at one meeting of The Regents.

I. MITIGATION MONITORING

CEQA requires that when a public agency makes findings of significance based on an EIR, the public agency must adopt a reporting or monitoring program to ensure that action is completed on those measures which it has adopted, or made a condition of the project approval, in order to mitigate or avoid the project's significant effects on the environment (Public Resources Code Section 21081.6). Measures included in the program would be those identified in this EIR, or could be equivalent mitigation measures that would accomplish the same reduction or avoidance of significant effects. The reporting or monitoring program must be designed to ensure compliance during project implementation (Public Resources Code Section 21081.6).

The Mitigation Monitoring Program for the 1996 LRDP will be prepared by UCSF and will be adopted by The Regents in conjunction with its review of the 1996 LRDP.

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1. Section 21083 of CEQA requires The Office of Planning and Research to prepare guidelines for the implementation of CEQA. Those guidelines are commonly referred to as the *CEQA Guidelines*.
 2. Public Resources Code Section 21080.09(a)(2).
 3. University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*, SCH No. 93013064, January 5, 1994, p.158
 4. University of California, *Procedural Handbook and Model Approach for Implementing the California Environmental Quality Act*, 1991.

Project Description

Chapter 2: Project Description

A. BACKGROUND

Each University of California campus is required periodically to update its Long Range Development Plan (LRDP), which sets forth concepts, principles and plans intended to guide future physical growth and change of the campus. UCSF has developed the 1996 LRDP to guide future physical development of UCSF through the academic year 2010/11. Upon certification of this EIR, the 1996 LRDP will be considered for adoption by The Regents.

This EIR analyzes potential environmental impacts associated with the 1996 LRDP. Certification of this EIR would not constitute a commitment by UCSF to any specific development proposals or sites described in the LRDP. Rather, implementation of the LRDP would depend upon the availability of resources and the approval of specific projects in accordance with CEQA and University of California policies and priorities. As subsequent projects to implement this LRDP are proposed by UCSF, they will be evaluated to determine if their potential environmental impacts have been adequately addressed in this EIR, and if not, UCSF will prepare any additional environmental documentation that is required under CEQA.

The 1996 LRDP, published separately on March 20, 1996, consists of the following primary elements:

- an Executive Summary of the 1996 LRDP;
- an Introduction that explains the background of the 1996 LRDP, sets the context for existing and potential new UCSF sites, and projects UCSF's space needs through the year 2010/11;
- Goals and Objectives which serve as the guiding principles of the 1996 LRDP;
- plans for the use of existing UCSF sites;
- development alternatives for a major new UCSF site;
- cross-site elements addressing housing; transportation, circulation and parking; materiel management;¹ safety and hazards; and information technology needs common to the UCSF campus as a whole;² and
- potential strategies for implementation of the 1996 LRDP.

At most University of California campuses, space needs are driven by student enrollment growth. Student enrollment projections are determined for general UC campuses by each campus and the Office of the President considering factors such as population growth, state financial support and campus capacity. UCSF, however, as the only UC health sciences campus, has a far smaller and relatively stable student enrollment which is projected in a

different manner due to the difference in state support for medical student training. Thus, the focus of the LRDP for UCSF is on the accommodation of space needs driven by the combination of research, clinical care and instruction needs, rather than on the increase in number of students.

The current and projected UCSF population is provided within this chapter in Section C.3.

B. PROJECT OBJECTIVES

The basic purpose of the 1996 LRDP is to guide physical development of the UCSF campus to achieve the priorities set forth in the *UCSF Academic Mission Statement*.³ The *Academic Mission Statement* provides the programmatic basis for future physical development at UCSF. It is based on long-term trends and goals at UCSF including greater interdisciplinary study and research; some growth in professional and graduate student enrollments; major research endeavors in topics such as AIDS, drug design, molecular and cell biology, cancer, children's health, and health policy; shifts in health care provision from the inpatient to the outpatient settings; and continued work in community health care and health/scientific education.

In addition, three committees comprised of faculty, staff and community representatives jointly prepared a *Goals and Objectives* document which expands upon the *Academic Mission Statement* and identifies the major goals and objectives that UCSF seeks to achieve through the 1996 LRDP.⁴ The goal statements are excerpted below.

ACADEMIC GOALS

- **Program Quality.** Maintain and enhance UCSF's leadership as one of the foremost academic health sciences institutions in the world, highly respected for the quality and scope of its educational programs, scientific activities and patient care.
- **Program Flexibility.** Build on current successes and maintain flexibility so as to respond to new opportunities and challenges as they arise.
- **Faculty Recruitment.** Recruit and retain a diverse faculty who are creative scholars, innovative teachers and outstanding clinicians.
- **Physical Environment.** Remain competitive by providing a physical environment which matches the intellectual richness and vigor of students, faculty and staff.

AMENITIES AND SERVICES/PUBLIC SAFETY

- **Access to Amenities and Services.** Ensure convenient access for the campus community to recreational, food, commercial and support services convenient

at all of its major sites. Provide for access by the wider community to UCSF facilities.

- **Campus Safety.** Provide a safe environment for students, employees and visitors.

BUILDING DESIGN

- **Building Design.** Design buildings which are distinctive and attractive, yet functional and cost effective.
- **Flexibility.** Design buildings to be flexible and adaptable for present and future programs.
- **Compatibility.** Design buildings which are responsive to building scale and character in the surrounding areas.
- **Reuse of Existing Buildings.** Where feasible and cost effective, utilize existing buildings by making the necessary improvements to support UCSF uses.

COMMUNITY

- **Community Mission.** Serve the community at large, in partnership with local agencies, through educational and service programs that address community needs and take advantage of the knowledge and skills of UCSF faculty, staff, and students.
- **Community Health and Education.** Expand access to UCSF's medical services and educational programs at least in proportion to growth, and improve communication to the public about available services.
- **Community Participation.** In order to build a partnership between the community and UCSF, provide effective, well-organized and meaningful processes for education and dialogue between the community and UCSF regarding their respective needs and plans.

ENVIRONMENTAL PLANNING AND SAFETY

- **Mitigation of Environmental Impacts.** Avoid or reduce potential adverse environmental impacts associated with UCSF's development or building projects, through appropriate mitigation measures.
- **Environmental Safety.** Provide campus facilities which are environmentally safe for all users.

- **Hazardous Material Management.** Enhance the existing system for managing potentially hazardous material which protects the campus and surrounding communities in a cost-effective manner, consistent with legal requirements, scientific findings and prudent practice.

FINANCE AND OPERATIONS

- **Facilities.** Provide high-quality technical facilities in a cost-effective manner.
- **Financial Feasibility.** Prepare a development plan that is financially feasible to implement.
- **Timing of Development.** Schedule acquisition and phasing of site development to respond to program needs.

HOUSING

- **Student and Junior Faculty Housing.** Assure adequate housing for junior faculty and students.
- **Housing Stock.** Maintain decent, attractive university-controlled housing stock.
- **Housing Impacts.** Ensure that UCSF expansion will not adversely affect the availability and affordability of housing.
- **Financial.** Provide housing for students and junior faculty that is reasonably affordable.

HUMAN RESOURCES AND ECONOMIC IMPROVEMENT

- **Personnel Practices.** Hire, retain and train talented, motivated and qualified personnel.
- **Diversity in the Work Force.** Maintain and promote diversity in the UCSF work force.
- **Neighborhood Impact.** Manage the expansion of UCSF's programs and sites to optimize economic benefits for local residents and businesses, those neighborhoods most impacted by the university, and the local economy at large. Promote affirmative action through minority- and woman-owned business enterprises programs and minority hiring; target jobs and job training for areas with high unemployment.
- **Training.** Provide job training in health, research and related fields.

INFORMATION TECHNOLOGY

- **Resources.** Promote individual effectiveness with appropriate information resources and computing tools which are easy to use and readily available.
- **Infrastructure.** Expand and improve communications infrastructure to support current and future demands, including telecommunications.
- **Instruction.** Provide better computerized instructional technology to students.
- **Redundancy.** Plan for redundancy of critical utilities.

INFRASTRUCTURE/UTILITIES

- **Utility Master Plan.** Develop a utility master plan for each site.
- **Expansion.** Plan the utility systems at each site so that they can be expanded incrementally as needed.
- **Utility Network.** Provide for a flexible utility network which can support the facilities at each site.
- **Redundancy.** Plan for redundancy of critical utilities.

INSTRUCTIONAL FACILITIES

- **Teaching Facilities.** Provide adequate teaching facilities and consolidate them for similar types of instruction by different departments and schools as much as possible.
- **Interaction Between Faculty and Students.** Promote interaction between students and faculty.
- **Teaching Program Support.** Ensure that teaching programs are fully supported with suitable physical facilities and support activities.

LAND USE

- **Site Characteristics.** Locate programs and activities at sites which are suitable and desirable for them and which do not now contain conflicting uses.
- **Land Use.** Arrange sites to reinforce academic and operational relationships.
- **Compatibility With Surroundings.** Ensure that UCSF development is compatible with physical surroundings in use, scale and density, and surrounding land uses do not negatively affect UCSF's activities.

SITE DEVELOPMENT AND CAMPUS DESIGN

- **Major New Site.** Plan for growth at a major new academic site, which will accommodate existing programs, new programs and as yet unprogrammed growth, and which is suitable, flexible, safe and attractive for its occupants.
- **Site Utilization.** Optimize design, placement and relationship of buildings on all sites to meet UCSF's program needs in the best way possible.
- **Campus Identity.** Create and reinforce a UCSF campus identity.
- **Physical Environment.** Create a physical environment at each site that provides pleasant surroundings for users.

SPACE PLAN

- **Adequacy of Space.** Plan for development of sufficient amounts of space in suitable types of facilities, delivered in a timely fashion, which will respond to the demand expressed by teaching, research and patient care programs, and associated support activities.
- **Space for Growth, Consolidation and Decompression.** Provide space for growth, consolidation and decompression as driven by program needs.

STUDENT LIFE

- **Student Housing.** Provide student housing or access to housing at or near new academic sites.
- **Amenities.** Provide access to amenities for students at all sites.
- **Student Services.** Provide effective student services to all students.

TRANSPORTATION, CIRCULATION AND PARKING

- **Access and Circulation.** Ensure that access to and circulation within UCSF sites is safe, direct and efficient.
- **Alternatives.** Emphasize transportation alternatives that will lessen auto traffic in and around campus sites.
- **Parking.** Provide adequate parking to serve patients, visitors, faculty, staff and students, while promoting use of public transit and alternative forms of transportation to single-passenger vehicles.
- **Materiel Handling.** Provide an efficient campus materiel handling system.

- **Neighborhood Impacts.** Minimize impact on local traffic congestion and parking shortages in a manner consistent with local government plans. Locate facilities to optimize access to public transit, and encourage transportation alternatives to single-passenger automobile travel.

C. UCSF'S PROJECTED SPACE NEEDS

1. EXISTING SPACE BASELINE

Excluding parking uses, UCSF currently occupies approximately 5.03 million gross square feet (gsf) at its main Parnassus Heights site, 11 other sites, and many leaseholds in San Francisco and the northern Peninsula.⁵ UCSF consists of four professional schools (Dentistry, Medicine, Nursing, Pharmacy), a Graduate Division, the Medical Center at Parnassus Heights and UCSF/Mount Zion, a psychiatric institute, and has affiliations with San Francisco General Hospital (SFGH) and the Veterans Affairs Medical Center (VAMC) in San Francisco.⁶ For administrative purposes, UCSF's space is assigned to the four schools, the Medical Center, and central administrative units. UCSF historically has concentrated its academic programs at the main Parnassus Heights site, while clinical and research programs are distributed among Parnassus Heights, UCSF/Mount Zion, SFGH, the VAMC and other UCSF campus sites. Space at UCSF is distributed among major space categories, which are described below. Existing space at UCSF in each of these categories is shown in Table 2-1.

- **Instruction**, which includes activities involving the transmission or dissemination of knowledge to students on a group or individual basis, including classrooms, teaching laboratories, seminar rooms and academic offices;
- **Research**, which includes research conducted in laboratories and offices with their associated research support activities, such as cold rooms, glass wash and microscopy;
- **Clinical**, which includes space for services provided to patients in hospitals or clinics, including space occupied by the Medical Center for functions which support the provision of direct patient care such as administrative offices and conference rooms;
- **Support**, consisting of the following types:
 - **Academic Support**, which includes activities supporting the academic enterprise, such as the library and animal care;
 - **Academic and Campus Administration**, which includes all administrative activities at the department, school and campus level, including deans' and directors' offices, and related service facilities, such as conference rooms and copying facilities, as well as non-

TABLE 2-1
EXISTING SPACE INVENTORY AT ALL UCSF SITES, DECEMBER 1994¹

Type of Space	GSF	Percent of Total
Instruction	383,900	8%
Research	988,300	20%
Clinical	1,420,500	28%
Support:		
Academic Support	224,700	4%
Academic/Campus Administration	914,800	18%
Campus Community	184,100	4%
Logistics	418,200	8%
Subtotal Support ²	1,741,800	34%
Housing	224,000	5%
Vacant/Alteration Space	275,300	5%
TOTAL²	5,033,800	100%

Notes:

1. December 1994 is the existing space baseline used in the LRDP.
2. Excluding parking. UCSF also occupies approximately 761,000 gsf of structured parking at Parnassus Heights and Laurel Heights.

Source: UCSF Space Inventory Building Report, Permanent Space File, December 1994, and Building List by Building Number, December 1994.

academic support activities which typically serve the campus as a whole, such as police, personnel and accounting offices;

- **Campus Community**, which includes activities, amenities and spaces which provide opportunities for relaxation, enjoyment of the natural environment, recreation, fitness, child care and food service;
- **Logistics**, which includes those activities devoted to the delivery of materials, and physical plant activities, such as machine shops, service yards, utilities and storage;
- **Housing**, which includes residential facilities for students and faculty; and

- **Vacant and Alteration Space**, which serves as "contingency" or "surge" space to accommodate routine departmental moves and temporary vacancies during space alterations such as laboratory upgrades and office remodeling.

2. PROJECTED SPACE NEEDS

In anticipation of the 1996 LRDP, each of the four schools and the Medical Center identified its respective need for academic and clinical care space for the next 10 to 15 years, including space for existing program growth, new programs and space to relieve existing crowded conditions ("decompression" space). Those needs were documented in the UCSF *Space Needs Assessment* prepared in June 1993, and updated in the LRDP to reflect changes in projected needs through March 1996.⁷ The projected need for academic (instruction and research) and clinical care space, adjusted to reflect changes through March 1996, is approximately 1.87 million gsf.

The academic space needs identified by the schools were estimated using a planning model developed by UCSF to evaluate requests for space and to derive the associated academic, administrative and logistical space necessary to support the identified academic space need. Using this model, UCSF estimated that approximately 1.20 million gsf of support space, adjusted to reflect changes in projected needs through March 1996, would be necessary to support the projected space need of 1.87 million gsf. In addition, UCSF determined that 200,000 gsf of new housing would be desirable to meet student housing goals, in addition to approximately 40,000 gsf of housing to replace units lost due to the rebuilding of the Aldea Student Housing. Another five percent (160,000 gsf) contingency was included to account for vacant space that results from routine departmental moves and temporary vacancies during space alterations (such as laboratory upgrades and office remodeling). Therefore, the 1996 LRDP plans for a total UCSF space need of approximately 3.4 million gsf, exclusive of parking.

This estimated total space need does not include space to develop parking to serve UCSF's current or future needs because parking requirements would vary based on UCSF site location and the modes of travel available to each site. For example, in suburban settings not well-served by mass transit, the amount of parking required could add more than two million gsf to the total needs over time. UCSF would develop parking at the Major New Site, in addition to UCSF program space. Parking would be developed as necessary to meet parking demand generated by UCSF development, taking into account public transit service and other alternative forms of transportation available to UCSF development sites.

UCSF's projected space needs do not correspond on a square-foot by square-foot basis with the need for new UCSF facilities. Although a major portion of the projected space needs would be met through new construction, some need would be satisfied through the full occupancy of existing vacant or under-utilized space (such as at Laurel Heights and the Mission Center Building); changes of space use within existing facilities to meet current priorities; and space efficiencies gained through the consolidation of functions from scattered locations to the Major New Site such that duplicate services or uses could be eliminated. Release space created by a reduction in the size of an existing department would help solve

space needs, but released space created by the movement of a department from one site to another would not. Similarly, consolidation of existing UCSF space would meet space needs only to the extent that duplicated services or uses could be eliminated.

Table 2-2 shows total projected needs in each space category, in excess of currently occupied space.

At full buildout, the identified space need would represent a 68 percent increase in all UCSF space. Instruction and research space represents about 40 percent of the total projected space need; clinical care space for the Medical Center and the four Schools represents about 14 percent of the total projected need; support space represents about 35 percent of the total projected need; and housing represents about six percent of the total projected need. The remaining five percent represents contingency vacant/alteration space as described above. Table 2-3 shows total UCSF space upon full buildout of the 1996 LRDP.

3. CURRENT AND PROJECTED POPULATION

Current estimated UCSF population at all Bay Area sites, and projected population upon implementation of all LRDP proposals including full buildout of the major new campus site, is shown in Table 2-4.

D. UCSF'S PLANS TO MEET PROJECTED SPACE NEEDS

1. PROGRAM DEVELOPMENT APPROACH

Parnassus Heights is the largest of the UCSF sites and is an environment which fosters interaction among faculty. However, the Parnassus Heights site is densely developed and there are very few opportunities to provide new space at the site. The limited development opportunities are a product of two factors: the physical configuration of the site and the 1976 Regents' Resolution limiting UCSF uses at Parnassus Heights to 3.55 million gsf. In recognition of the existing space constraints at Parnassus Heights, UCSF's 1982 LRDP recommended decentralization of UCSF uses from Parnassus Heights. Consequently, during the past 14 years, UCSF has attempted to meet its space needs by purchasing or leasing additional space in San Francisco and the Peninsula.

However, decentralization of UCSF uses from Parnassus Heights has led to inefficiencies. UCSF functions are duplicated at various sites, and students, faculty, staff and visitors must regularly travel among the dispersed sites. Because only a fraction of UCSF's projected space needs can be accommodated at any existing UCSF site, a number of strategies for accommodating long-term growth were examined by the faculty's Planning Committee for the 21st Century. That committee recommended as the preferred plan the development of a single major new campus site (referred to in this EIR as a Major New Site), with sufficient capacity to accommodate the projected LRDP space needs within the LRDP planning period and beyond. Over time, a Major New Site would also allow consolidation of UCSF activities that are currently widely dispersed.

TABLE 2-2
TOTAL ADDITIONAL UCSF SPACE NEEDS - GSF¹

Type of Space	GSF	Percent of Total
Instruction	90,000	2%
Research	1,300,000	38%
Clinical	470,000	14%
Support:		
Academic Support	340,000	10%
Academic/Campus Administration	410,000	12%
Campus Community	220,000	6%
Logistics	240,000	7%
Subtotal Support	1,210,000	35%
Housing	200,000	6%
Vacant/Alteration Space ²	160,000	5%
TOTAL³	3,430,000	100%

Notes:

1. Gross square feet.
2. Contingency need for vacant/alteration space is assumed to be five percent of total needs.
3. Excluding parking.

Source: University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996. Instruction, research and clinical needs identified by the Medical Center and the Schools of Medicine, Pharmacy, Nursing and Dentistry; corresponding support needs estimated based on those amounts.

UCSF has concluded that the successful launching of a Major New Site would be enhanced by establishing a core of academic programs at the Major New Site. Clinical programs (such as Pediatrics) would not be likely candidates to move from Parnassus Heights due to the essential linkages between clinical programs and the UCSF Medical Center. Instead, it would be more likely that several interdisciplinary program groups or research units from more than one school would move from Parnassus Heights to occupy space at the Major New Site. The space released at Parnassus Heights could, in turn, be used for decompression and selective growth of academic research programs, and possibly, clinical care programs.

As UCSF reconfigures its clinical programs over the next fifteen years to meet demands of managed care and other changes in health care financing, UCSF may create joint clinical programs with other local health care enterprises. UCSF is currently engaged in discussions with Stanford University, California Pacific Medical Center and California Pacific Medical Group over potential joint ventures and other collaborative activities.

TABLE 2-3
TOTAL PROJECTED SPACE AT LRDP BUILDOUT - GSF

Type of Space	Existing Sites	Major New Site	Total	Percent of Total
Instruction	370,000	160,000	530,000	6%
Research	1,330,000	1,220,000	2,550,000	31%
Clinical	2,000,000	0	2,000,000	24%
Support				
Academic Support	335,000	265,000	600,000	7%
Academic/Campus Administration	825,000	475,000	1,300,000	16%
Campus Community	240,000	160,000	400,000	5%
Logistics	<u>300,000</u>	<u>370,000</u>	<u>670,000</u>	<u>8%</u>
Subtotal Support	1,700,000	1,270,000	2,970,000	36%
Housing ²	250,000	0	250,000	3%
TOTAL^{1,3}	5,650,000	2,650,000	8,300,000	100%

Notes:

1. Excluding parking.
2. An additional 240,000 gsf of housing could be developed near the Major New Site, an existing site, or at some other location in proximity to UCSF sites.
3. It is assumed that at any given time some space will serve as vacant/alteration space to accommodate routine departmental moves and temporary vacancies during space alterations.

Source: University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996.

TABLE 2-4
CURRENT AND PROJECTED UCSF POPULATION

	Current¹	Projected at LRDP Buildout²
Faculty and Non-Teaching Academic ³	2,390	3,100
Staff	8,820	17,600
Students ⁴	3,690	4,016
Postdoctoral Scholars ⁵	1,590	1,500
Patients ⁶	2,945	4,300
Visitors ⁷	<u>3,730</u>	<u>5,500</u>
TOTAL	23,165	36,016

Notes:

1. *Mount Zion Program Revisions Subsequent Final EIR*, November 1992, and *Revised Laurel Heights Plan Final EIR*, September 1995, supplemented with personnel data, November 1993. Employee figures are generally adjusted for absences due to vacations, sick leave and travel.
2. Projections assume implementation of all LRDP proposals at existing sites plus full buildout of the major new campus site. Figures are adjusted for absences due to vacations, sick leave and travel based on historic rates.
3. Not including volunteer faculty and community health care providers.
4. Based on adopted projections through 2003-04; student enrollment after 2003-04 is assured to remain relatively constant.
5. Includes clinical fellows; projection could vary depending on future funding levels.
6. Daily inpatient population and outpatient visits to ambulatory care clinics, private practice physicians, dental clinics, and other referred visits.
7. Includes visitors to patients, faculty and staff; conference center visitors and participants in campus tours, continuing education and recreation programs; volunteers; children at child care facilities; and vendors.

2. UCSF'S PROJECTED SPACE NEEDS TO BE MET AT EXISTING SITES

Under the 1996 LRDP, current activities at Medical Center sites (Parnassus Heights, UCSF/Mount Zion), and UCSF affiliations at SFGH and VAMC would be maintained, and UCSF-owned buildings at Laurel Heights, Mission Center and the Buchanan Dental Clinic would be retained. The Turk Street student apartments would be retained in the near term until a comprehensive student housing plan is completed, including proposals to improve housing at Parnassus Heights, described as part of the 1996 LRDP. UCSF would develop additional facilities at existing sites pursuant to previously approved Amendments to the 1982

LRDP and other approved projects. These previously approved projects are carried forward in the 1996 LRDP to the extent they have not been fully implemented. Previously approved projects at existing sites include the following:

- **Parnassus Heights Central Utilities Plant.** The project was described and analyzed in the *Parnassus Heights Central Utilities Plant Project FEIR* and approved by The Regents in January 1994. The 35,250-gsf Central Utilities Plant is currently under construction. It will contain a cogeneration facility, central electrical distribution and emergency power equipment. The Central Utilities Plant will replace the existing power plant at Parnassus Heights, which will be demolished after the new plant is operational in 1997.
- **Laurel Heights.** In 1990, The Regents approved an occupancy program calling for 80 percent laboratories in the main building and annex. In September 1995, The Regents approved as an Amendment to the 1982 LRDP a revised occupancy program calling for use of 93 percent of the 362,500-gsf facility as office and building support, and seven percent as laboratory space. The Social, Behavioral and Policy Sciences programs, which are currently located at a number of dispersed sites, would be a major occupant of the office-based instruction and research space. The environmental effects of full occupancy of the Laurel Heights facility under the revised occupancy program were analyzed in an EIR certified by The Regents in September 1995.

UCSF/Mount Zion has a number of approved major capital projects described in its short- and long-term development programs pursuant to the 1990 and 1992 Amendments to the 1982 LRDP. The projects were analyzed in a FEIR certified by The Regents in January 1990 and as modified in a SEIR certified by The Regents in November 1992.

- **Mount Zion Research Building.** A new research building currently under construction at 2340 Sutter Street across from the main hospital block will provide about 109,000 gsf of new research and academic support space upon completion in 1996.
- **2330 Post Street Medical Office Building.** To help meet the need for new clinical office space in the UCSF/Mount Zion vicinity, the 2330 Post Street Medical Office Building was constructed by a private developer and purchased by UCSF upon completion in mid-1995. Interior buildout by the Medical Center is now underway. 2330 Post Street will provide approximately 44,200 gsf of new clinical space.
- **1701 Divisadero Street Medical Office Building.** To help meet the need for new clinical office space in the UCSF/Mount Zion vicinity, the 1701 Divisadero Street Medical Office Building is currently under construction by a private developer and will be purchased by UCSF upon completion in 1996. 1701 Divisadero Street will provide approximately 52,500 gsf of new clinical space and 157 parking spaces.

- **UCSF/Mount Zion Main Hospital Block.** Two UCSF/Mount Zion projects, the 90,000-gsf Outpatient Cancer Center and the 26,000-gsf Interim Power Plant are currently on hold pending further long-term planning for patient care management. Implementation of the approved Mount Zion Long-Range Development Program, including replacement hospital facilities and medical office space, will depend on a determination by UCSF that it will require additional inpatient capacity in the early 21st Century.

In addition to these previously approved major projects, a number of other projects at existing UCSF sites are expected to occur during the 15-year time frame of the 1996 LRDP. Those include the following:

- **Parnassus Heights.** Future projects at Parnassus Heights will focus on the restructuring and reuse of existing space and the demolition of seismically vulnerable and obsolete buildings, some of which will be replaced with more efficient structures. Proposed LRDP activities at Parnassus Heights are described in Section E.1, below.
- **SFGH.** UCSF currently occupies space at SFGH through an affiliation agreement with the City and County of San Francisco. Planning at SFGH is guided by an Institutional Master Plan which is currently being revised by the city to address long-term development at this site. UCSF hopes to occupy about 200,000 gsf of net new space at SFGH for decompression and growth of existing UCSF programs and provision of additional support services and amenities, through the replacement or infill of seismically vulnerable buildings and/or new development on existing surface parking lots. Proposed LRDP activities at SFGH are described in Section E.1, below.
- **Mission Center.** UCSF expects to occupy currently vacant space in the Mission Center building with academic and campus administrative offices.

3. MAJOR NEW SITE

A space program of 2.65 million gsf has been identified for the Major New Site. This amount includes instruction and research space with corresponding support activities as shown in Table 2-5, but excludes parking. UCSF does not expect to develop clinical care space at the Major New Site; however, a small community clinic could be located there to serve nearby neighborhoods. The Major New Site would meet all UCSF space needs not met at existing sites, and would accommodate UCSF's projected space need for the foreseeable future. Development of the Major New Site would occur in phases based on program needs and funding availability. Because all construction would be new, it would be built to UCSF's specifications and would avoid the space inefficiencies associated with remodeling existing buildings.

TABLE 2-5
MAJOR NEW SITE SPACE PROGRAM (GSF)

Type of Space	GSF	Percent of Total
Instruction	160,000	6%
Research	1,220,000	46%
Clinical	0	0%
Support:		
Academic Support	265,000	10%
Academic/Campus Administration	475,000	18%
Campus Community	160,000	6%
Logistics	<u>370,000</u>	<u>14%</u>
Subtotal Support	1,270,000	48%
Housing	<u>0¹</u>	<u>0%</u>
TOTAL²	2,650,000	100%

Notes:

1. An additional 240,000 gsf of housing could be located near the Major New Site, an existing site or at some other location.
2. Excluding parking.

Source: University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996.

Planning principles for the development of a Major New Site include:

- selection of a site capable of supporting at least 2.65 million gsf of program space during the LRDP planning period, and additional growth beyond the LRDP horizon;
- consolidation of logically related groups of UCSF uses at the Major New Site;
- gradual consolidation of dispersed activities at small sites to promote program cohesion, lower operating costs and create a cohesive campus environment (except for the planned retention of Buchanan Street Dental Clinic and other specialty clinics established in various Bay Area locations); and
- rendering unnecessary the development of additional new satellite sites for academic and/or support uses (except for small community clinics established near the populations they serve).

a. Potential Major New Sites

After an extensive site search and evaluation process conducted by UCSF over the course of several years, three sites are under consideration as potential candidates for a Major New Site (Chapter 15, Alternatives, includes a summary of that site search and evaluation process). They are:

- Brisbane Baylands/Executive Park (City of Brisbane and City and County of San Francisco)
- Harbor Bay Business Park (City of Alameda)
- Mission Bay (City and County of San Francisco)

UCSF has not identified a preferred Major New Site and, therefore, this EIR discusses all three potential sites in equal detail to maintain maximum flexibility in the site selection and acquisition process which would occur if The Regents approve the 1996 LRDP.

E. UCSF SITE LOCATIONS/ PROJECT CHARACTERISTICS

Existing and potential UCSF sites are shown in Figure 2-1.

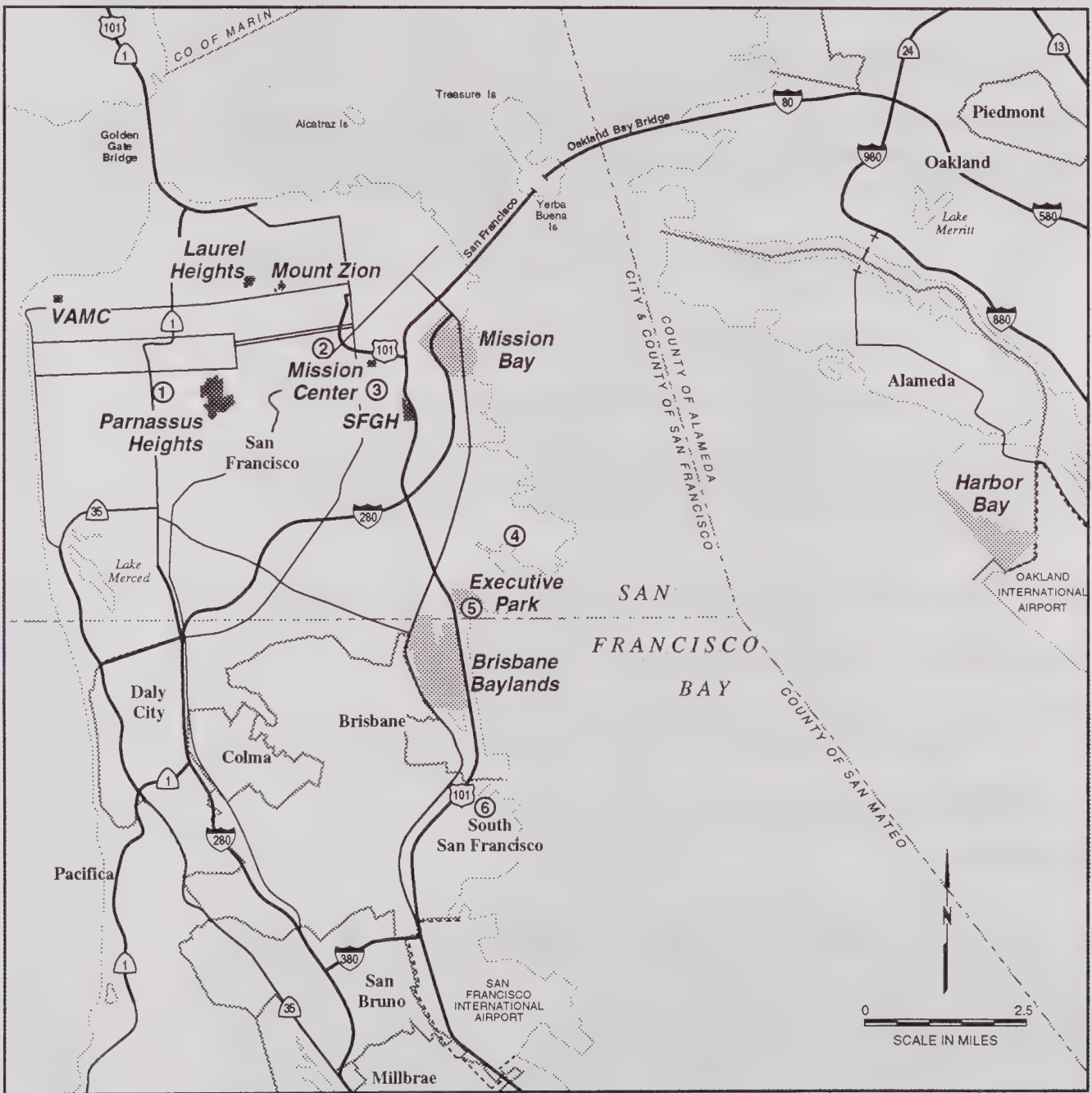
1. EXISTING UCSF SITE LOCATIONS AND DEVELOPMENT ASSUMPTIONS

a. Parnassus Heights

Site Overview

Parnassus Heights is the oldest and largest, in both size and campus population, of the sites that now constitute UCSF. UCSF was founded in 1864 as Toland Medical School and moved to Parnassus Heights in 1917. Parnassus Heights is also UCSF's historic institutional center. The site is located in the central part of San Francisco, on the slope of Mount Sutro near the Inner Sunset neighborhood (see Figure 2-2). UCSF also leases from the San Francisco Unified School District the three-story former Laguna Honda School, located on Seventh Avenue near Irving Street, two blocks from the western boundary of the Parnassus Heights site. Laguna Honda houses the personnel department and academic offices for departments in the School of Medicine.

The location of the Parnassus Heights site on 107 acres of the northern slope of Mount Sutro limits development to three areas: the Aldea parcel at the summit, the Lower Campus Shelf at the northern part of the site, and the Woods parcel on the hillside in the center of the site. More than half of the site (about 61 acres comprising the Mount Sutro Reserve) is designated by The Regents as permanent open space, leaving 46 acres for development.⁸



LEGEND

- Existing Sites
- Potential Major New Sites

Other Existing Sites:

- ① Laguna Honda School
- ② Buchanan St Dental Clinic
- ③ Harrison St Building
- ④ Hunter's Point
- ⑤ Executive Park
- ⑥ Oyster Point



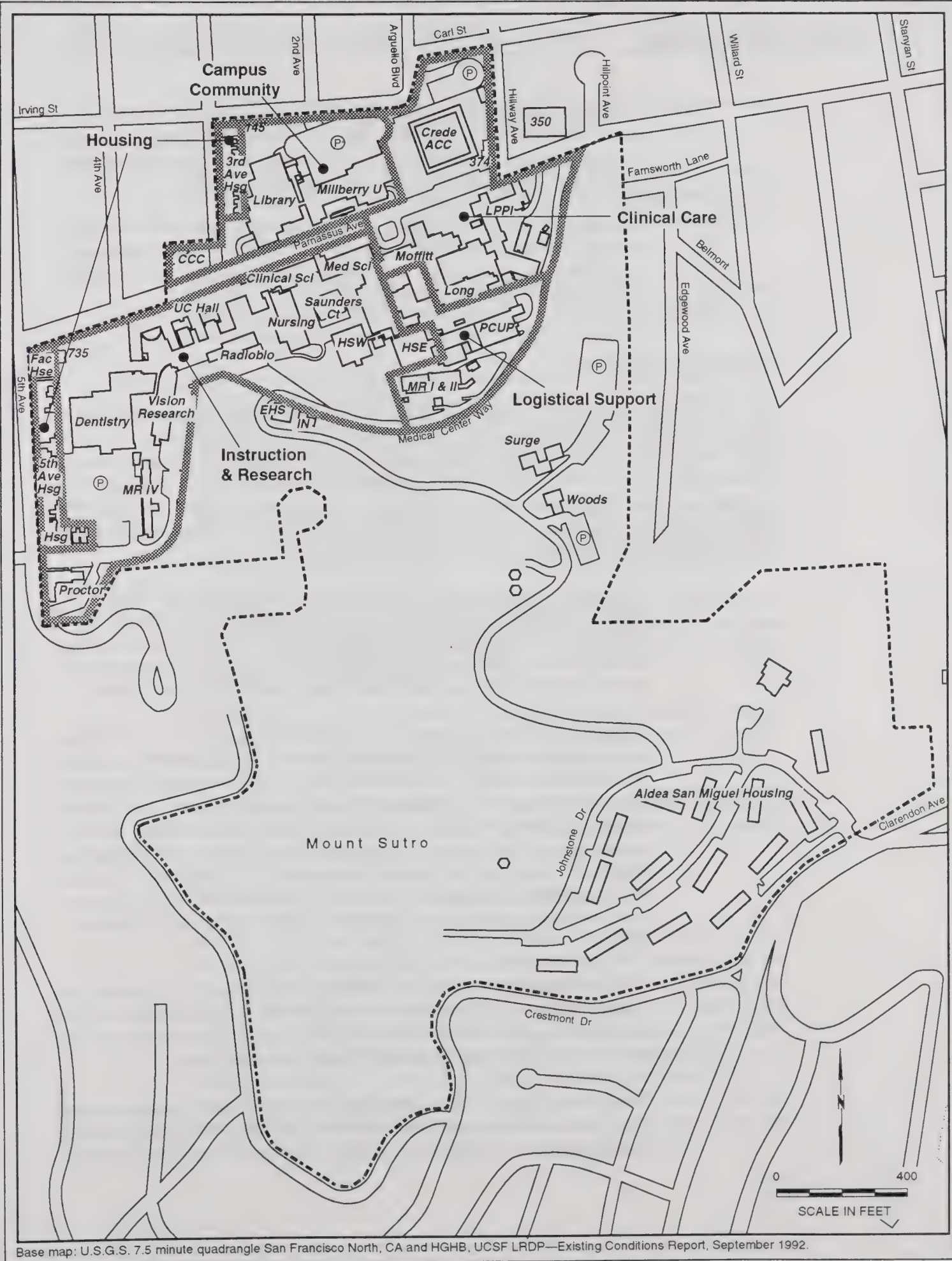
Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA and HGHB, UCSF LRDP—Existing Conditions Report, September 1992.

Most of the buildings at Parnassus Heights are on the 33-acre Lower Campus Shelf south of Parnassus Avenue (see Figure 2-3). Three buildings house the UCSF Medical Center at Parnassus Heights: Moffitt/Long Hospitals, the Crede Ambulatory Care Center, and the Langley Porter Psychiatric Hospital.⁹ (The Medical Center also includes UCSF/Mount Zion in the Western Addition neighborhood of San Francisco.) Three 16-story towers – Health Sciences East, Health Sciences West and the Medical Sciences Building – and the seven-story Clinical Sciences Building and five-story University of California Hall (UC Hall, the former UC Hospital) house teaching and research functions. The Schools of Dentistry and Nursing each have a building for clinical, research and administrative functions. The Millberry Union, adjacent to the Campus Library, provides recreation, food services and other student support functions and some academic and clinical offices. A joined parking structure is located under the Crede Ambulatory Care Center, Millberry Union and Library buildings.

In 1976, The Regents adopted a resolution limiting UCSF development at the Parnassus Heights site to 3,550,000 gsf. This is often referred to as the Parnassus Heights "space ceiling." Certain properties at the Parnassus Heights site are excluded from the space ceiling, notably houses along Third and Fifth Avenues (referred to as the University Residence Program or "Avenue Houses"), as long as they are used for residential purposes. As of December 1994 (the 1996 LRDP baseline), the total building area at the Parnassus Heights site applicable to the space ceiling was 3,691,299 gsf, an overage of 141,299 gsf, or 4.0 percent.¹⁰ Total gsf at Parnassus Heights, including Avenue Housing and other space not counted against the space ceiling, totaled 3,787,767 in December 1994.

To provide a general framework for building reuse and location of replacement facilities, UCSF groups uses on the Lower Campus Shelf into five functional zones (see Figure 2-3). These zones are not intended to create a rigid restriction on location of uses at Parnassus Heights. Rather, they generally reflect existing uses.

- **Clinical Care.** This area contains most of the patient care services plus related academic space and includes Moffitt/Long Hospitals, Langley Porter Psychiatric Institute and the Crede Ambulatory Care Center. There are additional clinics for dental patients at the west end of the Instruction and Research zone.
- **Logistical Support.** The service core of Parnassus Heights is located behind the Moffitt/Long Hospitals. It contains several receiving docks, materiel management facilities, the current power plant and the site of the future central utilities plant. Though central to operations, these uses comprise a tiny fraction of the total built environment at Parnassus Heights.
- **Instruction and Research.** This area contains the academic offices, laboratories, teaching halls, seminar rooms and central administrative space that form the core of the site. Some limited outpatient facilities are located in the west end of this zone.
- **Campus Community.** This area, on the north side of Parnassus Avenue, serves as the center for campus community services and includes the library, child care center and Millberry Union. Millberry Union contains the



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA and HGHB, UCSF LRDP—Existing Conditions Report, September 1992.

Source: EIP Associates, 1996.

bookstore, fitness center, conference facilities, dining areas and retail uses, as well as some faculty and administrative offices. Parking garages are located beneath the library, Millberry Union and the Crede Ambulatory Care Center. UCSF shuttle stops are located all along Parnassus Avenue.

- **Housing.** This zone, which consists of the Avenue Houses, two- and three-story housing units used as student residences, provides a buffer between the larger institutional buildings on the lower Parnassus Heights site and the adjacent neighborhood to the west.

Facility Needs and Plans

The 1996 LRDP proposals for Parnassus Heights respond to five main categories of need: to improve existing program space, much of which no longer meets contemporary codes or standards or is located in seismically vulnerable and obsolete buildings; to improve campus infrastructure systems; to provide improved housing facilities; to address transportation, circulation and parking systems; and to provide adequate amenities and services. The 1996 LRDP, Chapter IV, "Plans for Existing Sites," describes needs in each of these five categories and proposals to address these needs as summarized below.

- Relocate occupants of the Medical Research IV Building (MR IV) and UC Hall and demolish both buildings for a total demolition of 159,105 gsf. (It is likely the MR IV building would be demolished first; however no sequencing plan has yet been developed.) Between those two sites replace approximately 85,000 gsf of research and instruction space in one or two new buildings.

The new UC Hall building would be smaller than the current UC Hall building and designed to respond to the surrounding context. Because the new building would be smaller, opportunities exist to create a new landscaped plaza on a portion of the current UC Hall site. This plaza could serve as an expanded pedestrian gateway to the site and break up the mass of buildings currently extending west along Parnassus Avenue at the site. The new MR IV Building would likely occupy the entire site of the current MR IV Building. Together, demolition of UC Hall and MR IV and the construction of new buildings on the sites would result in a net reduction of about 74,105 gsf at Parnassus Heights.

- Construct a Parnassus Services Building in two phases on the site of the Medical Research I/II, Medical Research Annexes, and Central Services buildings. The new Parnassus Services Building would contain animal care, materiel management and hazardous material handling space.

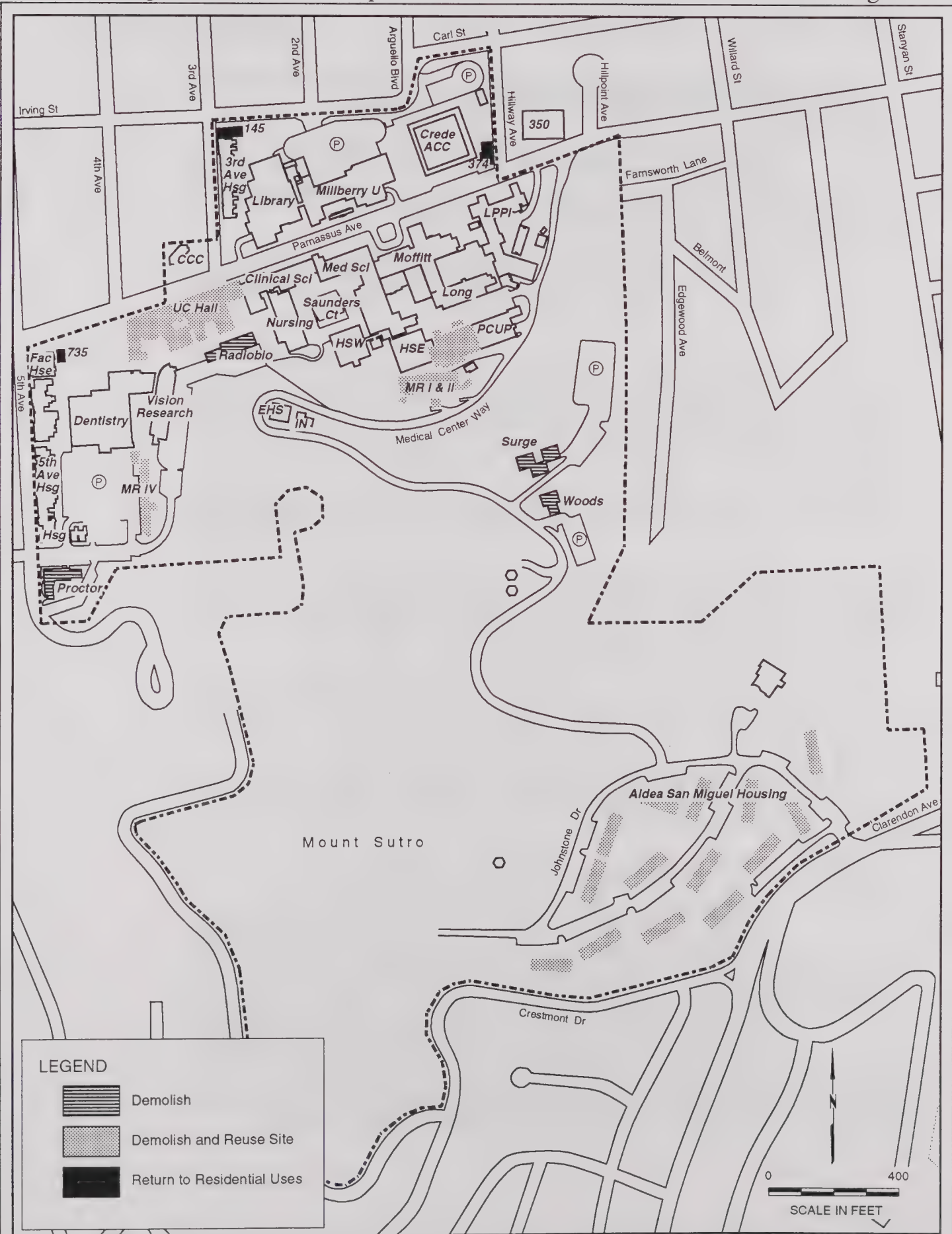
Phase 1 would relocate and expand animal care, materiel management and environmental health and safety facilities in a new, five-story building containing approximately 93,000 gsf on the site of the Heating Plant,

Generator and Central Services buildings. After completion of Phase I, the Medical Research I/II Building would be demolished.

Phase 2 would provide an additional 18,000 gsf of animal care, materiel management and environmental health and safety decompression and expansion space in a two-story extension of the Phase 1 building on the site of the demolished Medical Research I/II Building.

Construction of both phases of the Parnassus Services Building and demolition of the Medical Research I/II and Central Services Buildings would result in the net addition of 71,740 gsf at Parnassus Heights.

- Convert existing buildings used as offices at 145 Irving Street, 1308-10 Third Avenue and 1486-88 Fifth Avenue back to residential use, or demolish and replace those buildings with housing for students and/or faculty. Priority occupancy will be for student families or faculty at 1308-10 Third Avenue and 1486-88 Fifth Avenue, and for single students at 145 Irving Street.
- Convert existing buildings used as offices at 374 and 735 Parnassus Avenue to housing, or demolish those buildings and replace them with housing for students and faculty, or short-term use by families of Medical Center patients.
- Demolish the Proctor, Surge, Woods and Laboratory of Radiobiology buildings after moving their occupants to existing space on and off Parnassus Heights. Demolition of these four buildings would reduce the amount of space at the Parnassus Heights site by 43,343 gsf.
- Reconfigure space within existing academic teaching and research buildings for reuse, after the relocation of some units from Parnassus Heights to a Major New Site.
- Upgrade the electrical, ventilation, fire protection and other building-wide systems in Parnassus Heights laboratory buildings to permit the orderly renovation of laboratories.
- Maintain the existing amount of parking at Parnassus Heights.
- Demolish and replace student housing at the Aldea San Miguel Family Student Housing site to maintain the existing square footage but construct a fewer number of units with larger floorplans and recreation and child care facilities. About 125 units in three-story buildings with the same total floor area of about 106,000 gsf would replace the 165 one- and two-bedroom units in two-story buildings built in 1960. New construction would be located within existing building footprints. Of 14 existing building footprints, nine would be rebuilt as housing, one would be rebuilt as a child care facility, one would be converted to an outdoor recreation area, one would be converted to surface parking and two would be landscaped as open space (see Figure 2-4).



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA and HGHB, UCSF LRDP—Existing Conditions Report, September 1992.

Source: EIP Associates, 1996.

Development Assumptions

To provide a conservative analysis of potential environmental impacts associated with LRDP activities and UCSF use of the Parnassus Heights building sites identified in the LRDP, reasonably high development assumptions as defined below were used in this EIR. However, three development assumptions would remain constant at Parnassus Heights throughout the analysis:

- **Population.** The maximum average daily population at Parnassus Heights under the LRDP would be 16,000 staff, students, patients and visitors, compared to the estimated average daily population in 1993-1994 of about 15,400. The 1996 LRDP proposal calls for a net reduction in space at Parnassus Heights. The LRDP would replace staff-intensive research and administrative space with less staff-intensive academic support and logistics space. Therefore, this EIR assumes that over 400 UCSF employees would be relocated from Parnassus Heights to other existing UCSF sites or to the Major New Site. Future increases in average daily population at Parnassus Heights are assumed to result from increased patient and visitor activity and, primarily, increased outpatient visits. For analytic purposes, the EIR assumes that UCSF would limit total average daily population at the Parnassus Heights site to 16,000. Table 2-6 summarizes these changes anticipated by the LRDP.
- **Reduction in GSF.** Over the 15-year planning time frame of the 1996 LRDP, the demolition, conversion and new construction projects at Parnassus Heights would reduce the amount of gross floor area, and more closely meet the space ceiling total of 3.55 million gsf. Implementation of the LRDP would bring Parnassus Heights to approximately 3,615,055 gsf of space subject to the ceiling, or about 65,055 gsf over the ceiling, a reduction in the current overage of about one half.
- **Parking.** The existing amount of parking at Parnassus Heights would be maintained.

Affected LRDP Sites

The major buildings and sites at Parnassus Heights under study to meet the LRDP proposals described above are:

Buildings to be demolished with potential reuse of the site for new construction:

- UC Hall (formerly UC Hospital)
- Medical Research IV
- Central Services building
- Medical Research I/II and Medical Research Annexes I and II

**TABLE 2-6: CHANGE IN PARNASSUS HEIGHTS AVERAGE DAILY
POPULATION AT LRDP BUILDOUT ¹**

Population Category	Population
Faculty (Principal Investigators)	(12)
Graduate/postdoctoral/lab technician	(72)
Research faculty/professional researcher	(108)
Academic support staff	9
Campus and academic administration staff	(254)
Campus community staff	2
Logistics staff	<u>11</u>
Total Reduction in UCSF Staff Population	(424)
Estimated UCSF Staff Average Daily Population 1993/94, including students ²	10,151
LRDP Staff Reduction	(424)
Subtotal	9,727
Estimated Patients & Visitors Average Daily Population 1993/94	5,350
LRDP Increase in Patients & Visitors	<u>923</u>
LRDP Estimated Average Daily Population	16,000

Notes:

1. Based on full implementation of all LRDP proposals for Parnassus Heights, assuming typical ratios of staff per gsf for different space use types.
2. Average Daily Population estimates account for typical employee absences due to vacations, sick leave and routine needs to be at other sites.

Source: University of California San Francisco, Campus Planning Office.

■ Proctor Building

Buildings to be demolished with no reuse:

- Laboratory of Radiobiology
- Surge Building

- Woods Building

Buildings to be converted to housing or demolished for new housing construction:

- Aldea San Miguel Family Student Housing
- 374 and 735 Parnassus Avenue
- 145 Irving, 1308-10 Third Avenue and 1486-88 Fifth Avenue (“University Residence Program”)

Leases to be continued outside the Parnassus Heights site (not counted in space ceiling gsf):

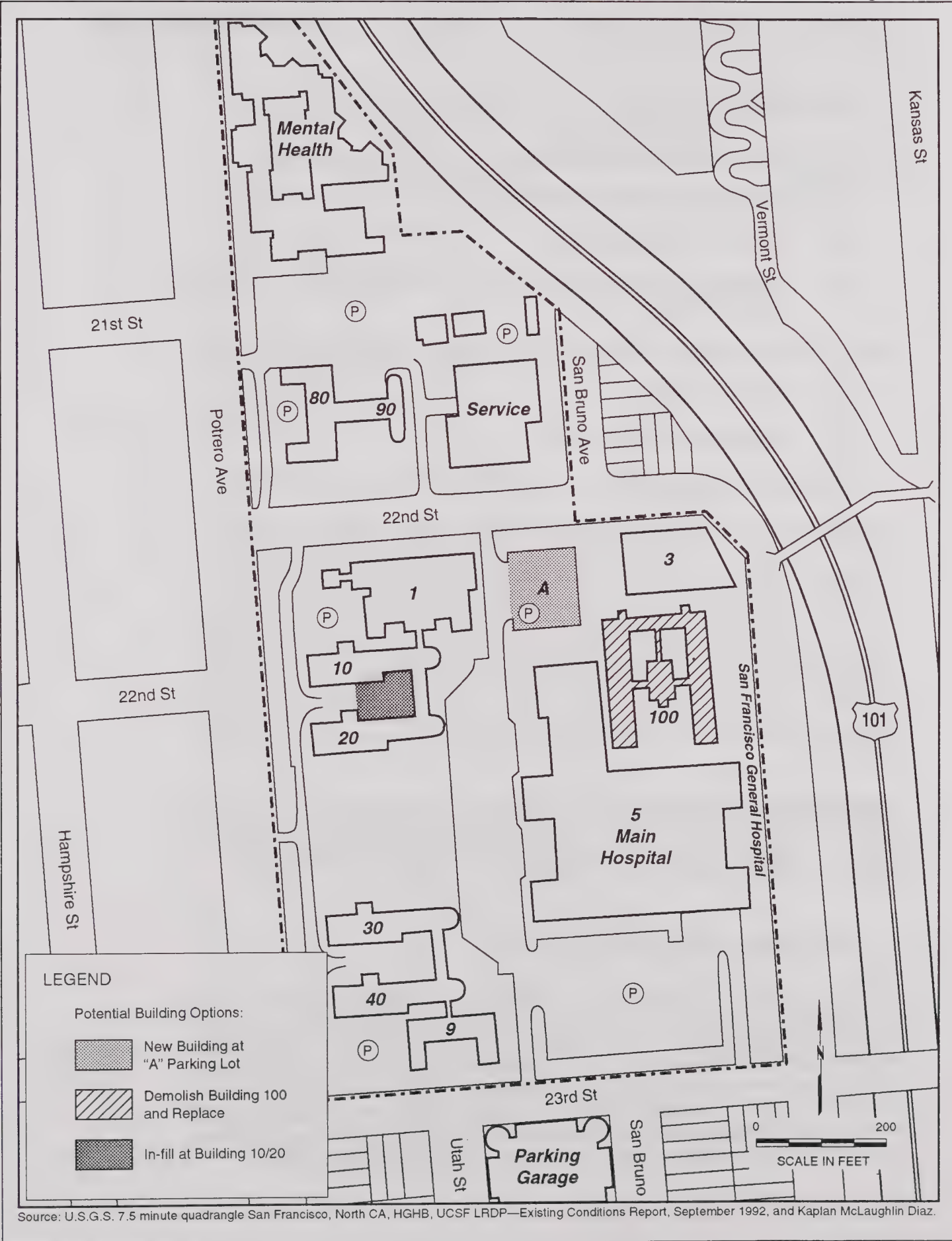
- Laguna Honda School
- 350 Parnassus Avenue (partial)
- Other smaller leaseholds

The LRDP does not include detailed planning for location, phasing, and building design or size of rebuilt buildings. Therefore the sites identified for potential new construction at Parnassus Heights are analyzed in this EIR as if the sites were developed to their maximum capacity. In fact, UCSF would rebuild at those sites to a lesser intensity than analyzed in this EIR or would build fewer new buildings so that the space ceiling coverage is reduced to 65,000 gsf. The LRDP proposal for 85,000 gsf of replacement research and instruction space could be met with a 25,000- to 40,000-gsf building on the MR IV site and a 45,000- to 60,000-gsf building on the UC Hall site. The EIR analyzes the buildings at the maximum gsf in the stated ranges on both sites. However, if a 40,000-gsf MR IV project were to be approved, the UC Hall project would be built at a maximum size of 45,000 gsf, which would result in a total of 85,000 gsf for the two sites.

The LRDP calls for UCSF to work with the San Francisco Unified School District to study the feasibility of retrofitting or rebuilding the Laguna Honda School site, which is leased from the School District. Appropriate additional environmental review would be conducted as necessary for future construction at the Laguna Honda School site.

b. San Francisco General Hospital (Affiliation)

SFGH is an acute-care medical center operated by the City and County of San Francisco. It is located primarily on two square blocks between 22nd Street, 23rd Street, Potrero Avenue and Vermont Street (see Figure 2-5). The Main Hospital Building and 12 other major buildings contain approximately 1,285,000 gsf of space. Of this amount, UCSF occupies about 174,000 gsf through an affiliation agreement and in leased space. UCSF also provides professional medical staff at SFGH through the affiliation agreement with the city. Almost all UCSF medical and dental students, and most residents, rotate through SFGH during their clinical training. The Schools of Nursing and Pharmacy also have student programs at SFGH.



UCSF has maintained an affiliation with SFGH for over 120 years and UCSF entered into a new affiliation agreement with the City and County of San Francisco in August 1994. Under this renewed affiliation agreement, UCSF maintains approximately 250 active staff physicians and about 550 courtesy staff physicians at SFGH. At any given time, approximately 100 UCSF medical students are working at the SFGH facility. UCSF faculty train about 800 interns and residents (housestaff) each year in 17 residency programs at SFGH.¹¹

Development Assumptions

In 1992, SFGH began to assess its projected needs to guide its future planning. Although SFGH's plans over the next 15 years, which will be incorporated into its revised Institutional Master Plan, are not yet finalized, a primary goal will be to strengthen the SFGH/UCSF relationship by providing new space for UCSF use at SFGH. Options under consideration for achieving this goal include the following:

- develop a new building on parking lot "A", containing approximately 100,000 gsf of research and academic support space, and about 20,000 gsf of city-operated clinical space, for a total of 120,000 gsf;
- demolish and replace Building 100 to provide for expansion and decompression of research space for UCSF faculty at SFGH;
- retrofit and infill Buildings 10/20, 30/40 and 80/90 to address seismic needs, and provide additional research space by infilling the wings of these structures; or
- address existing faculty needs for instructional support, libraries, child care, recreation and other support facilities through a combination of the above proposals.

As described in the LRDP, UCSF considers it reasonably foreseeable that up to 200,000 gsf of additional program space could be provided for UCSF uses under some combination of development on parking lot "A", and the Building 100 and the Building 10/20 sites. Under one possible approach, a new clinic and research building would be built on parking lot "A", into which programs currently located in Building 100 or Building 10/20 would move. Building 100 would then be demolished and rebuilt for new program space, or in the alternative, Building 10/20 would be rehabilitated and the area between the main wings infilled to provide a modern floorplate. Building 10/20 is one of the brick-faced ward buildings, with classical ornamentation, fronting Potrero Avenue. This proposal would offer an opportunity to add further research space, animal care, teleconferencing, instruction, library space and possibly fitness or child care facilities at SFGH. Under this scenario, total UCSF space at SFGH would grow from about 174,000 gsf to about 374,000 gsf under the 1996 LRDP.

SFGH and UCSF clinical space displaced by LRDP activities at SFGH would either be absorbed into other SFGH space, leased off-site or accommodated by a program of rehabilitation of other brick buildings fronting Potrero (80/90, 10/20, 30/40) at some later period.

With this scenario, the net increase in total UCSF space at SFGH would accommodate existing UCSF needs for decompression and consolidation, and provide sufficient space to add about 260 net new UCSF staff.

c. Other Owned and Leased Sites

UCSF/Mount Zion

UCSF/Mount Zion Medical Center is located about 1.5 miles northeast of Parnassus Heights in the Western Addition area of San Francisco. UCSF/Mount Zion currently occupies about 490,100 gsf in 23 owned and leased buildings. The main hospital block is bounded by Divisadero, Sutter, Scott and Post Streets. It contains approximately 5.5 acres.

Integration of the Mount Zion Hospital and Medical Center with UCSF occurred formally on July 1, 1990. The Integration Agreement included short-range (1990 to 1996) and long-range (1997 to 2010) development programs for UCSF/Mount Zion. In 1992, the short-range development program was modified to include acquisition of adjacent properties for research, medical office space and parking uses, and minor changes were made to the planned outpatient cancer center and power plant on the main hospital block.

UCSF/Mount Zion is part of the UCSF Medical Center. It is a primary and community-based medical center with cancer science as the major research focus. UCSF is mounting major initiatives to build a Comprehensive Cancer Center at UCSF/Mount Zion, to bring together at one location an array of basic research, clinical research, clinical cancer care, epidemiological studies and cancer prevention research, and community outreach and cancer control programs. One of the major objectives of the Comprehensive Cancer Center at UCSF/Mount Zion is to develop multi-specialty teams at one location. Other clinical programs will be developed or strengthened in the areas of diabetes, multiple sclerosis, rehabilitation and aging.

The major objectives of the UCSF/Mount Zion short-range program (1990-1996) approved in 1990 and revised in 1992 are to permit UCSF to make the capital investments necessary to develop outpatient medical office and research space for faculty physicians who practice at UCSF/Mount Zion. The Outpatient Cancer Center project, originally slated for construction during the short-range program, has been postponed to coincide with overall long-term planning for patient care facilities on the hospital block. Because the Outpatient Cancer Center project was not completed during the short-term program, total net new space at UCSF/Mount Zion at the conclusion of the short-range program would be less than projected in 1992. A more immediate requirement is to complete construction of medical office buildings at 2330 Post Street and 1701 Divisadero Street, and to secure about 40,000 gsf of additional medical office space beyond the 129,000-gsf need identified in 1992. In the long-term program, if UCSF were to develop more medical office space than was analyzed in 1990 and 1992, at the end of the long term, it would reduce other development accordingly so that total UCSF uses at UCSF/Mount Zion did not exceed the projections in the 1992 Amendment to the 1982 LRDP.

The major objective of the long-range program (1997-2010) remains to modernize and expand on the main block, including the main hospital at UCSF/Mount Zion, up to a maximum of

1,162,000 gsf. The development program for UCSF/Mount Zion has already been evaluated in previous environmental documents and approved by The Regents in the 1990 and 1992 Amendments to the 1982 LRDP. Therefore the projects contained in the UCSF/Mount Zion short-term and long-term development programs, including the Outpatient Cancer Center, new research space and outpatient medical office facilities, are only summarized in this EIR for informational purposes as part of UCSF's overall development under the 1996 LRDP. No additional environmental analysis is required.

Veterans Affairs Medical Center (Affiliation)

The Veterans Affairs Medical Center (VAMC), owned by the US Department of Veterans Affairs, is affiliated with UCSF as a teaching hospital; all physicians on staff at VAMC also hold faculty appointments at UCSF. The VAMC is located at Fort Miley in the northwest corner of San Francisco, directly adjacent to Lincoln Park. The site itself is a complex of 25 buildings located on 26 acres with approximately 593,700 gsf of clinical, educational and research facilities.

The VAMC provides acute medical, neurological, surgical, and psychiatric inpatient and outpatient care to the population of veterans in the San Francisco/Oakland/San Jose metropolitan area, as well as in the rural counties of Northern California. In addition, the VAMC serves as a referral resource for Northern and Central California, Northern Nevada and Hawaii, and in some specialties, for the western United States, and has the largest concentration of research programs in the VA system. A Facilities Development Plan currently is being prepared for the VAMC and will be implemented by the US Veterans Affairs Department and its local medical center administration. The general goals of the Facilities Development Plan include correcting life safety and other code deficiencies through renewal or replacement of seismically vulnerable buildings; upgrading ambulatory care and psychiatric care facilities; consolidating dispersed research programs at the site; and expanding off-site VAMC clinics in San Francisco and outlying areas. Because the 1996 LRDP does not anticipate any change in UCSF's existing use of the VAMC site, no environmental analysis of UCSF use of the VAMC is required in this EIR.

Laurel Heights

The Laurel Heights building is located at 3333 California Street in the Laurel Heights neighborhood, about two miles from the Parnassus Heights site and about one mile from UCSF/Mount Zion. The ten-acre site sits on a single city block and contains two buildings. The main building has three below-grade floors with both office and parking uses, and four above-grade floors. It contains about 349,500 gsf of space that may be occupied plus an additional 107,400 gsf of covered parking. The single-story Annex building at the southeast corner of California and Laurel Streets contains 13,000 gsf. The Laurel Heights facility was acquired by UCSF in 1985 and is only partially occupied. Current occupants of the building include UCSF research and academic/administrative departments and the San Francisco Magnetic Resonance Center, which is the only non-UCSF tenant in the building. A revised occupancy plan for Laurel Heights was analyzed in an EIR certified by The Regents in September 1995, and was approved

by The Regents as the 1995 amendment to the 1982 LRDP. Under the revised plan, UCSF expects to occupy 93 percent of the Laurel Heights Building and Annex with office-based instruction and research uses related to social, behavioral and policy sciences and other administrative uses. The existing laboratory space, which occupies about seven percent of the building, would remain.

Full occupancy of the Laurel Heights facility is being carried out under the 1995 Amendment to the 1982 LRDP. The effects of the revised occupancy plan, described in the *Revised Laurel Heights Plan EIR*, are summarized in this EIR for informational purposes as part of UCSF's overall development under the 1996 LRDP. No additional environmental analysis is required.

Mission Center

The three-acre Mission Center site, owned by UCSF, is located at 1855 Folsom Street in the Mission District, and is about three miles from Parnassus Heights and 1.25 miles from SFGH. The six-story office building contains approximately 291,000 gsf of space and is used primarily for administrative office units including Accounting, Mail Services and Hospital Information Systems. One floor is devoted to laboratory and animal care space for biomedical research.

Two non-UCSF tenants occupy about 16,600 gsf of space in the Mission Center building, and about 11,700 gsf (about four percent) of the building is currently vacant. Under the 1996 LRDP, UCSF would retain the Mission Center building and occupy the remaining vacant space with uses similar to existing UCSF occupants. Individual units may relocate to or from the building during the LRDP planning period; however, the existing larger administrative units are expected to remain at Mission Center. The effects of UCSF occupancy of Mission Center were analyzed in a Negative Declaration in 1989. Those effects are summarized in this EIR for informational purposes. Because of the minor changes proposed at Mission Center under the LRDP, no additional environmental review specific to Mission Center is necessary in this EIR.

Buchanan Street Dental Clinic

The Clinic is adjacent to the UC Berkeley Extension San Francisco Center in the Haight-Fillmore neighborhood, about 2.5 miles east of Parnassus Heights. The two-story Clinic is owned by UCSF and includes seminar rooms, dental treatment rooms, offices and laboratories.

It is expected that current academic and clinical care programs at the Clinic would continue at existing levels under the LRDP.

Hunters Point Animal Care Facility

The owned site is at the eastern edge of the Hunters Point and Bayview neighborhoods in the Hunters Point Naval Shipyard. Two small structures house animal rooms, pens and support space including procedure and cage washing areas. It is expected the animal care facilities

would be relocated to the Major New Site when it is developed and the Hunters Point facility would be vacated by UCSF and sold if no other uses for the site are identified.

Oyster Point

UCSF's warehousing and hospital laundry facilities are in South San Francisco at 612 Forbes Boulevard, directly east of US 101 in the Oyster Point district. The 138,000-gsf industrial building is owned by UCSF. UCSF also leases space within this district for a research laboratory at 389 Oyster Point and a reproduction and print shop at 100 Kimball Way. When the Major New Site is developed, all Oyster Point units would be relocated to the Major New Site and the Oyster Point facility would be sold, if no other uses for the site are identified.

Harrison Street

UCSF leases the three-story, 48,700-gsf industrial building at 3130 20th Street at Harrison. The first and second floors contain Facilities Management Department offices. The third floor is occupied by office space for School of Medicine units located at SFGH. The site is about three miles southeast of Parnassus Heights and six blocks from SFGH. Under the 1996 LRDP, the Harrison Street building, as a leased property, could be vacated when space at the Major New Site becomes available.

Executive Park

San Francisco Executive Park, a privately-owned mixed-use development, is located in the Bayview/Candlestick Park area off US 101 on the southern San Francisco County line, approximately 7.5 miles from Parnassus Heights. UCSF leases the second floor of one building for administrative units. The Executive Park site is being considered together with Brisbane Baylands as a potential Major New Site.

Downtown San Francisco Sites

The School of Medicine currently leases space at 74 New Montgomery Street (36,200 gsf) and 1388 Sutter Street (30,500 gsf). In addition, UCSF leases 25,800 gsf of office space at 44 Montgomery for several medical center and administration office units which require a downtown location. Some of the above units plan to move to the Laurel Heights facility between 1996 and 2000. These moves are reviewed in the 1995 *Revised Laurel Heights Plan FEIR*. To the extent possible over time, units occupying leased space would be consolidated to existing owned sites or the Major New Site. Some units would remain downtown to be near their client base.

2. POTENTIAL NEW SITE LOCATIONS AND DEVELOPMENT ASSUMPTIONS

a. Program and Space Needs

UCSF is currently considering three Major New Site locations: Brisbane Baylands/Executive Park on the border of the City and County of San Francisco and Brisbane in San Mateo County; Harbor Bay Business Park in Alameda; and Mission Bay in San Francisco. The space program of 2.65 million gsf which has been identified for a Major New Site would address UCSF's program and space needs for the next 15 years or more. The floor area in the space program does not include parking, as the total amount of parking would differ by site. However, assumptions for the area that would be required for parking were made for each potential Major New Site and potential impacts associated with development of sufficient parking at a Major New Site are analyzed in the impact chapters of this EIR where relevant. The projected Average Daily Population for the Major New Site at full buildout under the LRDP is shown in Table 2-7. Table 2-8 summarizes the Major New Site program and projected employment at the two subsites for the Brisbane Baylands/Executive Park site. This EIR assumes that full buildout of a Major New Site would occur by 2010/11, although it is likely that actual buildout would take longer because of funding constraints and the magnitude of UCSF's infrastructure and other capital needs at existing sites.

b. Projected Major New Site Average Daily Population

The potential population of a Major New Site at full buildout under the 1996 LRDP was projected using existing UCSF student, faculty, researcher, support staff and visitor data tailored to reflect the likely UCSF occupants of a Major New Site. In general, population projections are based on historical Average Daily Population data for Parnassus Heights, excluding inpatient and outpatient visitors because clinical care uses are not anticipated at the Major New Site. The Average Daily Population at full buildout under the 1996 LRDP for a Major New Site is estimated to be about 8,240 persons, as shown in Table 2-7 below.

c. Brisbane Baylands/Executive Park

The combined Brisbane Baylands/Executive Park site is about six miles from downtown San Francisco and five miles north of the San Francisco International Airport. The Major New Site program would be split between the Brisbane Baylands parcel in the City of Brisbane in San Mateo County and the Executive Park parcel in the City and County of San Francisco. The space program is assumed to be split between the Brisbane Baylands and Executive Park parcels to maximize use of the Executive Park parcel and accommodate remaining needs at the Brisbane Baylands parcel. This would result in approximately one-third of the 2.65 million gsf space program being located at Executive Park and the remaining two-thirds being located at Brisbane Baylands. If Brisbane Baylands/Executive Park were selected as the location of the Major New Site, the initial development would likely occur at the Executive Park parcel because UCSF already occupies some leased space at that parcel, and utilities and infrastructure are in place.

**TABLE 2-7: MAJOR NEW SITE
PROJECTED AVERAGE DAILY POPULATION AT FULL BUILDOUT UNDER LRDP**

Population Category	Population Adjustment Factor	Population
Instruction and Research		6,560
Support		
Academic		180
Administration		1,720
Campus Community		320
Logistics		<u>310</u>
Subtotal New Site Staff Population		9,090
Daily Population Adjustments:		
Average daily absentees ¹	11%	(1,000)
95% Staff @ peak parking period ²	5%	<u>(405)</u>
Total New Site Staff Daily Population		7,685
Visitors	5% visitors per staff	385
Vendors	2% vendors per staff	155
Non-UCSF Campus Community Use (Recreation, Child Care, etc.)	0.2% non-UCSF use per staff	15
Subtotal Visitors		<u>555</u>
TOTAL		8,240

Notes:

1. Average Daily Population estimate accounts for typical employee absences due to vacation, sick-leave and travel. An 11% adjustment factor is subtracted from the subtotal staff population.
2. Average Daily Population estimate accounts for employee absences due to routine needs to be off site during the peak parking accumulation period. Assuming that during the peak parking period, 95% of staff present that day are on-site, a 5% adjustment factor is subtracted from the subtotal staff population net of average daily absentees.

Source: University of California San Francisco, Campus Planning Office.

**TABLE 2-8: NEW SITE DEVELOPMENT PROFILE
BRISBANE BAYLANDS/EXECUTIVE PARK**

Land Use	New Site Total ¹		Brisbane		Executive Park	
	GSF	Employment	GSF	Employment	GSF	Employment
Instruction	160,000	0	100,000	0	60,000	0
Research	1,220,000	6,560	660,000	3,500	560,000	3,060
Support						
Academic Support	265,000	180	150,000	100	115,000	80
Academic/Campus						
Administration	475,000	1,720	340,000	1,290	135,000	430
Campus Community	160,000	320	100,000	200	60,000	120
Logistics	370,000	310	370,000	310	0	0
TOTAL	2,650,000	9,090	1,720,000	5,400	930,000	3,690

Notes:

1. Excluding parking and housing. Vacant/alteration spaces included in land uses. Approximately 240,000 gsf of housing may be located at or near a Major New Site.

Source: University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996 and University of California San Francisco, Campus Planning Office.

These factors would allow development to proceed at a faster pace at Executive Park than at Brisbane Baylands. In the near term, it is possible that UCSF could lease additional space in existing or new buildings at Executive Park to provide surge space for units moving from Parnassus Heights regardless of which of the three potential Major New Sites were to be selected.

One portion of the Brisbane Baylands area which is under consideration for the Major New Site is an approximately 86-acre portion of the larger 523-acre Brisbane Baylands site on the west side of the rail tracks (the west side was considered more likely for development in the near term because the area on the east side of the rail tracks requires landfill remediation). The City and County of San Francisco is located to the north, and areas of Brisbane and the City of Daly City are located to the west. US 101 and the San Francisco Bay lie to the east of the parcel. The CalTrain rail line runs north/south through the Brisbane Baylands parcel. While the 86-acre parcel is discussed in the LRDP and the EIR as a potential development location, the environmental analysis in this EIR covers effects that would generally occur with UCSF development of a Major New Site anywhere on the west side of the CalTrain tracks in the Brisbane Baylands parcel.

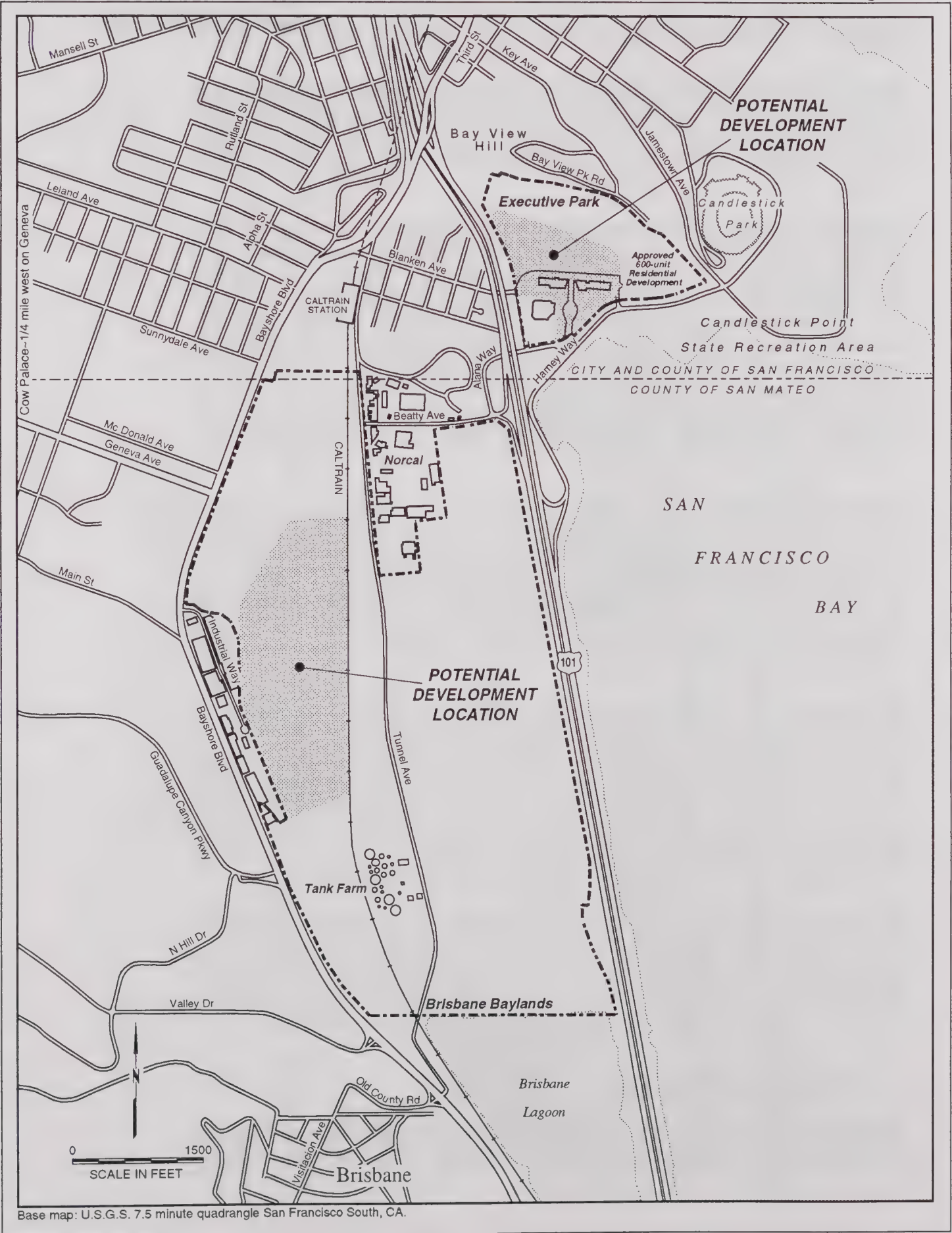
At Brisbane Baylands, UCSF development would be organized into three areas: a research, instruction and academic support zone to the north; a zone comprised mainly of research and academic support with landscaped pedestrian areas in the middle; and a zone dedicated to logistical support, activities and parking to the south and east along the CalTrain tracks. The main entrance to the Brisbane Baylands parcel would be through the north zone, which would lead to the center of the site. A new central utilities plant would likely be built in the southwestern corner of the Brisbane Baylands parcel to serve site facilities once a critical mass of buildings was constructed.

The Executive Park area under consideration for the Major New Site is an approximately 32-acre portion of the larger 71-acre Executive Park site in the City and County of San Francisco, north of the City of Brisbane. Executive Park includes a portion of Bayview Hill to the north and is bounded by US 101 to the west, Harney Way and San Francisco Bay to the south, and Candlestick Park stadium to the east. A development plan for a mix of office, retail and housing uses was approved by the City and County of San Francisco in 1986, and three office buildings totaling 320,000 gsf have been constructed at Executive Park. A 600-unit housing project has also been approved as part of the Executive Park amended development plan.

The Executive Park parcel may be developed with research, support and parking facilities on all commercial portions of the parcel which are controlled by the property owner, including the sites of two existing office buildings at 2000 and 2100 Executive Park Boulevard. One existing office building at Thomas Mellon and Alana Way is separately owned and is not considered available for UCSF development as part of the Major New Site. (See Figure 2-6.)

d. Harbor Bay Business Park

Harbor Bay Business Park is part of the Harbor Bay Isle mixed-use development on the western and central portion of Bay Farm Island in the City of Alameda. Harbor Bay Business Park,



comprised of about 320 acres, is partially developed with buildings totaling about 500,000 gsf. About 190 acres remain available for future development (see Figure 2-7). One portion of the Harbor Bay Business Park area under consideration for development of the Major New Site contains about 67 acres of the 190 undeveloped acres. While that area is discussed in the LRDP and this EIR as a potential development location, environmental analysis in this EIR covers the effects that would generally occur with UCSF development of a Major New Site anywhere in Harbor Bay Business Park. The Harbor Bay site is bounded by the City of Alameda golf course to the northeast, the Metropolitan Oakland International Airport to the southeast, and San Francisco Bay to the west and southwest. Two major residential neighborhoods, Highlands Homes and Harbor Bay Villages, have been developed to the north of the site.

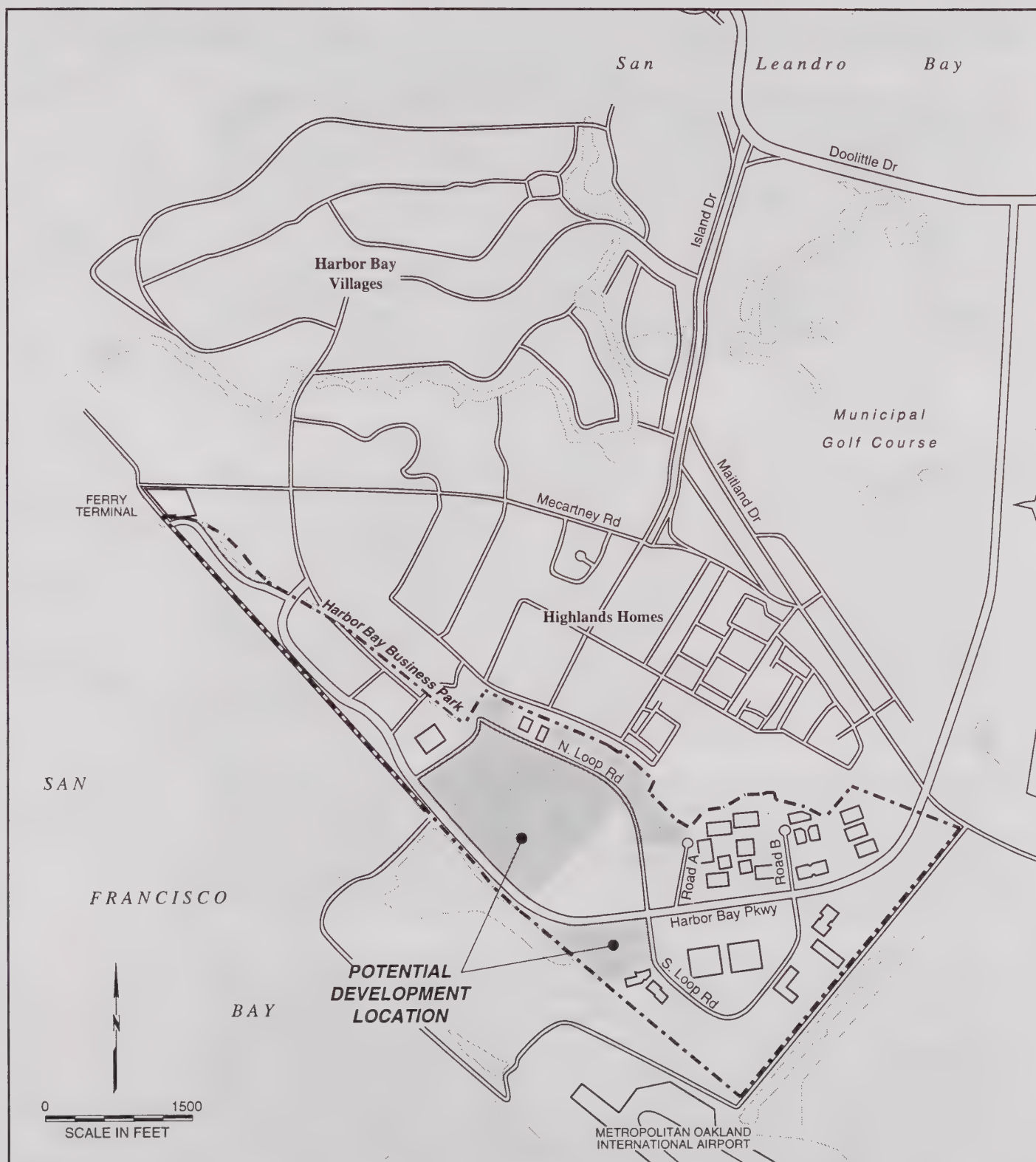
e. Mission Bay

Mission Bay is about one mile south of downtown San Francisco and is generally bounded by Townsend Street to the north, Interstate 280 (I-280) to the west, Mariposa Street to the south and San Francisco Bay to the east (see Figure 2-8). The Mission Bay area encompasses about 313 acres along the western shoreline of San Francisco Bay. Most of the greater Mission Bay area contains industrial uses including rail yards, truck terminals, construction-related operations, warehouses and maritime activities. Much of the area is under-used or vacant. An area under consideration for the Major New Site at Mission Bay is located near the intersection of Third and 16th Streets in the southern portion of the Mission Bay planning area. While that area is discussed in the LRDP and this EIR as a potential development location for the Major New Site, the environmental analysis in this EIR covers the effects that would generally occur with UCSF development of a Major New Site anywhere in Mission Bay.

Future development of the Mission Bay area is governed by the Mission Bay Plan, a specific plan within the Central Waterfront Plan of the *San Francisco Master Plan*. This comprehensive plan is fashioned around the concept of a new neighborhood in Mission Bay. The Plan calls for the development of 8,500 housing units, 4.8 million gsf of office/institutional space, 900,000 gsf of commercial/light industrial space, 750,000 gsf of retail space, a 500-room hotel and 67.9 acres of open space.

However, in February 1996, Catellus Development Corporation, the owner of all but a small portion of the Mission Bay area, announced that it was exercising its right to withdraw from the 1991 Mission Bay Plan and the Mission Bay Development Agreement with the City and County of San Francisco. Catellus indicated that the development contemplated under the Mission Bay Plan and the Mission Bay Development Agreement was economically infeasible, but that it was considering proposing alternative land uses on a portion of Mission Bay north of China Basin Channel. The alternative land uses would emphasize residential, commercial and parking uses on about 69 acres of the 313-acre plan area. As of the publication of this EIR, Catellus has not yet submitted an application for a revised development plan in the Mission Bay area.

For the following reasons, this EIR uses cumulative assumptions and analyses based upon the Mission Bay Plan and information contained in the *Mission Bay FEIR*:



Base map: U.S.G.S. 7.5 minute quadrangles Hunters Point, Oakland East, Oakland West and San Leandro, CA.



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, San Francisco South, CA and Mission Bay Plan.

Note: Streets within Mission Bay are proposed new network.

- The *Mission Bay Plan*, an element of the *San Francisco Master Plan*, continues to be the adopted specific plan for *Mission Bay*. The land use designations for the *Mission Bay Plan* are embodied in the applicable zoning designations of the City Planning Code.
- The *Mission Bay FEIR* assesses long-term buildout of the entire Mission Bay plan area by the year 2020, in accordance with adopted zoning. Those analyses, where cited in this EIR, represent conservative growth assumptions, i.e., greater cumulative effects than are likely to occur in the LRDP analysis period to the year 2010.
- Transportation analyses in this EIR for a Major New Site at Mission Bay, as described in Chapter 12, use Metropolitan Transportation Commission (MTC) growth projections to model future traffic in the Mission Bay area in the year 2010, with and without development of a Major New Site. The MTC projections, which are based on ABAG projections, include only a portion of the growth assumed in the *Mission Bay FEIR*. The MTC projections for 2010 Mission Bay development may be more consistent with Catellus' potential alternative development at Mission Bay than the projections contained in the *Mission Bay FEIR*. Therefore, the transportation analysis (and related air quality and noise analyses) in this EIR represent reasonable 2010 conditions for evaluation of the Major New Site at Mission Bay.

In the March 26, 1996 primary election, San Francisco voters considered Proposition B, a measure supporting development of a new baseball stadium on King Street near Third Street (the "China Basin Site"), adjacent to the northern end of the Mission Bay Plan area. Should that measure be approved, it is expected that the San Francisco Giants will proceed to submit an application for environmental review of the proposed stadium. No information is currently available on the environmental effects of that stadium proposal. However, the *Mission Bay FEIR* included analysis of a variant of a 45,000-seat stadium at the China Basin site. The transportation analysis of that variant is discussed in Chapter 12, Section C, in relation to traffic effects of development of a Major New Site at Mission Bay.

Should UCSF select Mission Bay as the preferred location of a Major New Site, new information from any revised development plan for Mission Bay, or a stadium project, if one is approved, would be considered by UCSF in any environmental review which might be required in connection with development of the Major New Site at Mission Bay.

UCSF's general concept for development of a Major New Site at Mission Bay is shown in Figure 2-8. The *Mission Bay Plan* would need to be modified to accommodate a Major New Site at Mission Bay, primarily to accommodate more research-type space and less office space than envisioned in the *Mission Bay Plan*. In addition, the locations of various uses in the *Mission Bay Plan* might need to be modified. A Major New Site at Mission Bay presents the possibility that UCSF could develop some of the student housing which the LRDP calls for at or near a Major New Site. However, UCSF would not propose to take any action which would reduce the total amount and type of housing in the *Mission Bay Plan*.

F. 1996 LRDP IMPLEMENTATION AND PHASING

The implementation of the 1996 LRDP would occur in phases over the course of the LRDP planning period. It is likely that UCSF's initial activities will focus on upgrading facilities at existing sites to address basic code deficiencies and provide necessary near-term space to achieve program goals. A second focus would be on identifying and acquiring the Major New Site. The final phase of implementation would focus on providing basic infrastructure and initial buildings at the Major New Site. This implementation schedule could vary based on changes in funding opportunities, medical industry responses to health care reform and changes in educational programs.

Because the timing of implementation of the 1996 LRDP cannot be predicted with certainty, this EIR does not attempt to analyze the effects of LRDP implementation at any interim year, but rather examines the physical impacts of LRDP implementation at full buildout. Regardless of the timing of implementation of the 1996 LRDP, the overall UCSF program at buildout will not exceed that analyzed in this EIR. The EIR conservatively assumes the entire LRDP program will be built by the year 2010/11. In reality, due to funding constraints and medical industry changes, it is likely to take longer to achieve full implementation of the LRDP. As subsequent LRDP projects are implemented by UCSF, they will be evaluated to determine if their impacts have been adequately addressed in this EIR, and if not, UCSF will prepare additional environmental documentation, as required by CEQA. The next projects anticipated at Parnassus Heights are: demolition and reconstruction of MR IV, UC Hall and the Aldea San Miguel Family Student Housing. This EIR is intended to provide project-level environmental documentation for these projects.

G. ACTIONS TO BE TAKEN IN IMPLEMENTING THE 1996 LRDP

1. ACTIONS BY THE UNIVERSITY

Before adopting the 1996 LRDP, The Regents must certify that the EIR is adequate and complete and make appropriate findings. The purpose of this EIR is to analyze potential environmental impacts associated with the 1996 LRDP, and to provide information helpful in the selection of a Major New Site to provide for expansion, decompression and consolidation of existing space.

2. ACTIONS BY OTHER AGENCIES

A number of agencies and, in the case of a Major New Site, jurisdictions, may have to act before individual 1996 LRDP projects can be implemented and construction of a Major New Site can begin. Permits for specific actions may be required from trustee or responsible agencies such as the Bay Area Air Quality Management District or the Regional Water Quality Control Board. The responsible and trustee agencies would be identified at the time of review of proposed actions or implementations.

1. Materiel management refers to the movement and distribution of goods through the campus system.
2. The term "campus" refers to all of UCSF's sites together, as the various UCSF sites constitute one "campus."
3. University of California San Francisco, *UCSF Academic Mission Statement*, April 1991.
4. University of California San Francisco, *Goals and Objectives*, consolidated from the recommendations of the faculty's Planning Committee for the 21st Century, the Community Advisory Group and the staff's University Advisory Group, November 1994.
5.
 - a) Gross square feet (gsf) is the total square footage of a building, including all walls, structures, mechanical spaces and the corridor system.
 - b) UCSF also occupies approximately 653,700 gsf of structured parking at Parnassus Heights and 107,400 gsf of structured parking at Laurel Heights.
 - c) UCSF also has some small leaseholds in other parts of California outside of the Bay Area.
6. UCSF also operates the Fresno-San Joaquin Valley Medical Education Program in the Central Valley.
7. University of California San Francisco, *Space Needs Assessment*, June 1993, as adjusted in the LRDP to reflect changes through March 1996.
8. Technically, 58 acres have been designated as permanent open space by The Regents. Recent surveys indicate the open space area is actually 61 acres. The 1996 LRDP proposes to modify the open space reservation to include the total 61 acres.
9. Although Moffitt and Long are two separate hospitals, they are in one inter-connected building.
10. This is the gross square footage as of December 1994, which is the baseline used throughout the 1996 LRDP. As of March 1996, the total building area at Parnassus Heights included under the space ceiling is 3,657,266 gsf, or 3.0 percent above the ceiling. The increase since December 1994, includes 3,725 gsf of improvements at the ACC Building plaza and 2,450 gsf in new School of Nursing lecture hall lobby, and demolition of the Laundry/Storehouse building (-40,208 gsf).
11. Medical housestaff includes interns and residents.

Regulatory Background, Regional Setting, and Methodology

Chapter 3: Regulatory Background, Regional Setting and Methodology

A. INTRODUCTION

1. PURPOSE AND ORGANIZATION

The purpose of this chapter is to provide information that is generally applicable to all UCSF sites or that applies to at least more than one UCSF site in order to avoid needless repetition of information. In some exceptional cases which are noted herein, information is included in Chapter 3 that only applies to one site because it may be helpful to the EIR reader to have all information on a particular subject in one location in the EIR.

For each environmental topic, information is provided on Regulatory Background, Regional Setting, Standards of Significance, and Impact Methodology. The Regulatory Background section summarizes pertinent federal, state and local laws that govern various aspects of an environmental topic, such as regulations governing hazardous materials handling, transport and disposal. More detailed technical information is contained in the Appendices. The Regional Setting section describes those regional baseline conditions pertinent to an environmental topic and thus, provides the context for an analysis of potential impacts from the LRDP. The status of air quality in a regional air basin would be one example of regional setting information.

The Impact Methodology sections describe and explain the methodology used to assess the degree of environmental impact for each environmental topic. For example, the traffic subsection explains the use of traffic corridor analysis at the Major New Site locations and at Parnassus Heights. It also describes the different means by which traffic movement is categorized into various levels of service. The Standards of Significance sections describe the criteria by which environmental impacts are evaluated to be significant or less than significant. As necessary, site-specific regulations, setting information or methodology applicable only to one UCSF site is presented in the chapter or section pertaining to that site. For example, Chapter 4 includes site-specific setting information for the Parnassus Heights site, and Chapter 12, for each of the Major New Site locations. Each impact is listed in the following format, as in the example below:

Impact 12C1-1. (Project/Significant).

Impact 12C1-1 identifies an impact topic in Chapter 12, Topic C, Site 1, Impact 1. A **Project** impact would occur as a result of project operation, in contrast to a construction period impact. **Significant** means the impact would be a significant adverse effect before implementation of identified mitigation. Mitigation measures use the corresponding numbering system. If mitigation identified would reduce the impact below levels of significance, the form **Project/Less Than Significant** is used. If an effect would be unavoidable, the form **Project/Unavoidable** is used.

2. ACRONYM GLOSSARY

AB	Assembly Bill
ABAG	Association of Bay Area Governments
ADWF	Average Dry -Weather Flow
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
CAA	Clean Air Act
Cal-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
CALINE4	Computer model used to project roadside carbon monoxide levels
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CBC	California Building Code
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Engandered Species Act
cf	cubic feet
CMA	Congestion Management Agency
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
Corps	The Army Corps of Engineers
dB	Decibel
dBAs	A-weighted decibels — handle a sound's frequency components in a manner approximating the human ear.
DHS	California Department of Health Services
DOF	California Department of Finance
DPH	Department of Public Health
DPW	Department of Public Works
DTSC	California Department of Toxic Substances and Control
EH&S	UCSF Environmental Health and Safety
EIR	Environmental Impact Report
EMFAC7F1.1	California Department of Transportation's model for on-road vehicular emission rates
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
Ldn	The day-night average noise level for a 24-hour period.
Leq	The equivalent noise level is the average acoustic energy noise content during the time it lasts.
LOS	Level of Service
LRDP	Long Range Development Plan

MCE	Maximum Credible Earthquake
mgd	million gallons per day
MHW	Mean High Water
MOU	Memorandum of Understanding
MTC	Metropolitan Transportation Commission
MW	Megawatt
NIC	Northwest Information Center
NIH	National Institutes of Health
NO ₂	Nitrogen dioxide
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
OHWM	Ordinary High Water Mark
PG&E	Pacific Gas & Electric
PM ₁₀	Suspended particulate matter less than 10 microns
ppm	parts per million (by volume)
PWWF	Peak Wet-Weather Flow
RCRA	Resource Conservation and Recovery Act
RHB	Radiologic Health Branch
ROG	Reactive Organic Gases
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SFFD	San Francisco Fire Department
SFM	State Fire Marshall
SFPD	San Francisco Police Department
SFUSD	San Francisco Unified School District
SFWD	San Francisco Water Department
SO ₂	Sulfur Dioxide
SRRE	Source Reduction and Recycling Program
UCPD	University of California San Francisco Police Department
UCSF	University of California San Francisco
USFWS	US Fish and Wildlife Service
V/C	Volume/Capacity ratio
VAMC	Veterans Affairs Medical Center

B. LAND USE

1. REGULATORY BACKGROUND

The State of California has delegated land use authority to local governments. Each city and county is responsible for the preparation and implementation of its own general plan and zoning regulations according to state standards. Local plans and regulations must define the jurisdiction's requirements regarding land use, health and welfare, housing, community facilities, emergency services and education. Development that takes place within a city's or county's jurisdiction must adhere to the requirements of the local general plan and zoning controls. It is the responsibility of the local jurisdiction to enforce its land use plans and regulations.

The University of California is constitutionally exempt from local planning and zoning controls whenever land under its control is used for University purposes. However, UCSF has voluntarily chosen to work cooperatively with local governments regarding land use and planning issues in order to assure that the mutual interests of the local jurisdiction and UCSF are addressed. The jurisdictions that could be affected by LRDP activities and their applicable land use controls are discussed below.

a. City and County of San Francisco

The vast majority of UCSF's existing uses are located in the City and County of San Francisco, and the Major New Site could be totally or partially located within San Francisco. UCSF and San Francisco entered into a Memorandum of Understanding (MOU) in 1987 to establish a cooperative approach regarding communication of all master planning, construction and real estate utilization matters. The MOU provides for annual meetings of UCSF staff and City Planning Commission staff to review long-range plans for UCSF and city development. The parties also agree to coordinate with each other on matters affecting their mutual interests as projects evolve. The MOU states that the city will use Section 304.5 of the San Francisco City Planning Code to evaluate UCSF's projects. That code section outlines the city's requirements for completion of Institutional Master Plans for medical centers and colleges. Such plans must describe the facility's development plans for at least the next ten years, their conformity to applicable *Master Plan* policies, their anticipated impacts to surrounding neighborhoods and the mitigation measures identified to reduce the impacts. UCSF is not subject to Section 304.5 and does not prepare an Institutional Master Plan, but UCSF submits its LRDP to the City Planning Commission pursuant to the MOU. The Commission may submit written recommendations, if any, for amendment of UCSF's proposals. However, the MOU does not surrender any authority of UCSF to the City and County of San Francisco. The full text of the MOU is provided in Appendix 2.

For the purposes of coordination between UCSF and the city, the City and County of San Francisco's major land use planning documents include the following:

- **San Francisco Master Plan.** The *Master Plan* contains comprehensive objectives and policies that guide land use in the city. The *Master Plan* contains a number of Specific Plans that set forth more specific plans, policies, guidelines and implementation measures for specific areas of the city. Some of the Area Plans or Specific Plans that could apply to the 1996 LRDP include: 1) *The Mission Bay Plan*, which establishes a concept for a new neighborhood in the Mission Bay area; 2) *The Central Waterfront Plan*, which encompasses the Mission Bay area, plus two sub-areas that include China Basin, the northern half of Central Basin and adjacent inland areas; and 3) *The South Bayshore Plan*, which includes the southeastern portion of the city fronting on the bay, addressing such locations as Candlestick Park and Executive Park
- **San Francisco City Planning Code.** The *City Planning Code* is the city's zoning ordinance and implements the *San Francisco Master Plan*, as well as the various Specific Plans, through location-specific regulations, such as use restrictions, and building height and bulk limitations. Section 304.5 of the *City Planning Code* outlines submission requirements for Institutional Master Plans from all institutions occupying a site area of one or more acres, or those anticipating future expansion to an acre or more. As stated above, UCSF uses its LRDP to communicate its expansion plans to the City and County of San Francisco, and is not subject to Section 304.5 or other portions of the *City Planning Code*.

b. **City of Brisbane**

The City of Brisbane would have jurisdiction over the Brisbane Baylands portion of the Major New Site at Brisbane Baylands/Executive Park. Its main planning documents are the *City of Brisbane 1994 General Plan* and its zoning regulations. The *General Plan* identifies the Brisbane Baylands site as a Planned Development. This designation allows office, educational and research uses. The *General Plan* also anticipates a UCSF site as a potential use of Brisbane Baylands.

c. **City of Alameda**

The City of Alameda would have jurisdiction over the Major New Site at Harbor Bay. The city's principal planning documents are the *1991 City of Alameda General Plan* and zoning regulations. The Land Use Element of the *General Plan* classifies the Harbor Bay site as a Business Park which would allow office, research and development uses.

The Harbor Bay Development Agreement, between the City of Alameda and the owners of Harbor Bay Isle, also governs use of the Harbor Bay site. The Development Agreement, approved in 1989, established the terms and conditions for development within Harbor Bay Isle, including the Harbor Bay Business Park. It addresses entitlements for future development and use of the property, required fees and land dedications, and protections from further

environmental review and from changes in Alameda's plans and regulations. It provides for the completion of the Shoreline Park near Harbor Bay Business Park, and it establishes funding mechanisms for landscaping, public access improvements, traffic improvements and infrastructure. Should UCSF select Harbor Bay as its Major New Site, the terms of the Development Agreement would need to be evaluated to determine their relevance to UCSF as a tax-exempt entity.

2. REGIONAL SETTING

The regional setting for the land use analysis is San Francisco County, northern San Mateo County and western Alameda County. (UCSF's program in the City of Fresno is described separately in Chapter 11.) The 1996 LRDP addresses continued use of existing UCSF sites and development of a Major New Site in the urbanized Bay Area. Existing UCSF sites are primarily located in San Francisco and South San Francisco, with several small units in other Bay Area cities and counties. All existing UCSF sites are in fully-developed environments.

Many portions of the Bay Area, particularly on main transportation corridors in San Francisco, the Peninsula and the East Bay, are fully built-out urban areas. Few large tracts of land are available for the development of a Major New Site. The three Major New Site locations under consideration in the 1996 LRDP have already been the subject of extensive local review and planning in general or area plans. All the Major New Sites are intended for mixed-use development, including uses such as UCSF's proposed instructional, research, administrative and related support uses. Planning requirements and physical site characteristics will vary for each potential Major New Site and therefore are discussed on a site-specific basis in the following chapters addressing the individual sites.

3. STANDARDS OF SIGNIFICANCE

Pursuant to the University of California's constitutional authority, development and uses on property owned or leased by the University that are consistent with the University's mission are not subject to local land use regulation. However, UCSF relies upon local land use policies as planning guidelines and as the basis for determining land use and planning impacts under CEQA. Further, UCSF cooperates with local planning agencies in matters of mutual concern. Based on these policies, and for purposes of this EIR, the LRDP would have a significant adverse land use or planning impact if the proposed LRDP development and uses would:

- substantially conflict with the adopted environmental goals, plans and policies of the local planning jurisdiction;
- substantially conflict with the use designations, height and bulk, and density restrictions of local zoning; or
- be substantially incompatible with existing land uses.

4. IMPACT METHODOLOGY

The examination of land use impacts in this EIR is based on information obtained from the following sources:

- site observations;
- review of the Draft 1996 LRDP;
- review of published environmental documentation and land use studies of the existing and proposed UCSF sites, including documents published by local jurisdictions addressing land use issues within their jurisdictions;
- review of applicable elements in the General Plans of the cities having or potentially having jurisdiction existing and proposed UCSF sites; and
- discussions with planning staff in local jurisdictions having or potentially having jurisdiction over the existing and proposed UCSF sites.

For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

C. TRAFFIC/CIRCULATION/PARKING

1. REGULATORY BACKGROUND

Transportation issues related to specific projects are generally addressed on a local or project-specific basis, although larger development projects could have regional transportation impacts that require improvements or modifications to roadways under the authority of state or regional transportation agencies. Traffic associated with UCSF uses at a Major New Site could affect state and local transportation facilities. Off-site traffic improvements (such as improvements to freeway ramps) and other mitigation measures could be the responsibility of state and local agencies and would need to be approved by those agencies. In many cases, mitigation measures would be required as a result of growth or land use changes not triggered by UCSF activities. A list of involved agencies follows:

- The California Department of Transportation (Caltrans) has jurisdiction over all state transportation facilities including regional freeways, state highways, arterial routes designated as state highways, and many park-and-ride lots. Caltrans facilities would be affected by development of the Major New Site.
- Individual cities could be responsible for implementing off-site traffic improvements within their respective jurisdictions associated with the development of a Major New Site. Among the jurisdictions which could be responsible for implementing off-site traffic improvements are the cities of Alameda, San Leandro, Oakland, Daly City, Brisbane, and San Francisco and San Mateo County.
- Local transit agencies also would be responsible for implementing service changes related to transit. Transit agencies which could be affected by the LRDP are MUNI, CalTrain, Sam Trans, AC Transit and Golden Gate Transit.

2. REGIONAL SETTING

The regional setting for transportation purposes consists of San Francisco County, northern San Mateo County and western Alameda County. Major transportation facilities serving these areas are Interstate 80 (I-80) between San Francisco and the East Bay via the Bay Bridge; Interstate 280 (I-280) between the Mission Bay area and the South Bay; US 101 between the North Bay and South Bay (on city streets through much of San Francisco); Interstate 880 (I-880) between Oakland and the South Bay; BART, providing passenger rail service on the Daly City/Colma, Richmond, North Concord/Martinez and Fremont lines; CalTrain, providing passenger rail service between San Francisco and the South Bay; and the Harbor Bay Ferry, between Bay Farm Island in Alameda and San Francisco.

The transportation characteristics for the relevant setting areas differ from one another, but have in common the following:

- **Traffic Congestion.** Peak-period congestion on regional freeway facilities such as I-80, I-280, I-880 and US 101 is severe in many locations under current conditions. The *1994 Regional Transportation Plan for the San Francisco Bay Area* (RTP) identifies planned regional transportation improvements through the year 2010.¹ The list of planned improvements includes only projects which can be delivered with funds that are expected to be available over the 20-year time frame of the plan. Although the RTP includes significant proposed improvements to regional transportation facilities, the level of congestion on Bay Area freeways is expected to increase dramatically by the year 2010 because there are not adequate funds to construct all of the needed improvements.
- **Peak-Hour Spreading.** As a result of increasing peak-hour congestion, more drivers are choosing to travel outside of the traditional or typical peak hours. This has resulted in a spreading of congested periods, which is evidenced most clearly by the increasing duration of congestion on the Bay Bridge.
- **Changing Travel Population.** Travel characteristics have been changing, particularly during the peak hours. The traditional morning peak-hour home-to-work and afternoon peak-hour work-to-home trips represent a much smaller proportion of the total peak-hour trips than they did in the 1960s. The largest growth in this time period has been in trips which do not involve the home at either end. These trip types are particularly difficult to serve with transit and carpools because, unlike home-to-work trips, many of the trips are not trips people make on a regular basis.
- **Changing Travel Origins and Destinations.** The other major shift which has occurred in the Bay Area is the shift of travel away from central employment destinations such as San Francisco, Oakland and San Jose to the broader Bay Area. This change has made it more difficult to provide effective transit to employment sites as the number of major employment areas has increased and the density of these sites has tended to decrease.

The existing transportation facilities and transportation characteristics provide the regional background for the assessment of existing transportation conditions and the impacts analysis that follows for individual sites.

3. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant adverse impact on traffic, circulation and parking conditions if the proposed LRDP development and uses would:

- cause the corridor level of service to drop during the peak hour below acceptable levels of service based on local traffic standards, or would cause a corridor already operating at an unacceptable level of service to further deteriorate during the peak hour to an extent determined to be significant by

local traffic standards (if no local traffic standard exists, a drop in service level below Levels of Service (LOS) D, or if service levels are already below D, a deterioration of 0.01 or more in volume-to-capacity (v/c) ratio, will be considered significant);

- generate projected parking demand that would exceed the proposed parking supply;
- generate projected transit demand that transit systems would not be able to accommodate; or
- cause substantial bicycle/pedestrian/vehicle conflicts.

4. IMPACT METHODOLOGY

The transportation analysis in this EIR provides a program-level transportation analysis by addressing corridor-level traffic impacts associated with LRDP activities at Parnassus Heights and at the potential Major New Sites. Corridors are defined as major travel routes to and from the relevant existing and proposed UCSF sites. In general, the analysis of corridors has been conducted by identifying the most constrained street segment within a corridor and focusing analysis on that segment to provide a worst-case scenario level of analysis.

a. Level of Service Concept

The operation of a corridor is evaluated with the “Level of Service” concept. Level of Service (LOS) is defined with the range of letters from “A” to “F”. LOS A represents little congestion, no delay and free flowing conditions. LOS F represents congestion, stop-and-go waves and traffic demand exceeding the theoretical capacity of the roadway. Table 3-1 provides a qualitative description of each level of service category.

The primary determinant of LOS for a corridor is its capacity, defined at the most constrained segment. The capacity represents the maximum number of vehicles that can traverse a point or uniform section of a roadway and is given for various periods including average weekday and morning and afternoon peak hours. The level of service is obtained by comparing the volume of the traffic (vehicles per hour or per day) to the capacity deriving a volume-to-capacity (v/c) ratio. Each transportation facility type (e.g., freeway, highway, arterial) has a different relationship between v/c ratio and LOS, because LOS is a perceived value and people’s tolerance for delay differs for different types of facilities (for example, people expect to encounter delay at traffic signals along arterials but do not expect to stop while traveling on a freeway facility).

Volume-to-capacity threshold values for various levels of service are based on nationally accepted standards for corridor-level analysis.² Capacity values were also based on these standards and are affected by factors such as area population and type (central business district or non-central business district), vehicular traffic mix (the percentage of trucks), directional

TABLE 3-1
TRAFFIC LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Qualitative Definition
A	Free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. The general level of comfort and convenience provided to the motorist is excellent.
B	Stable flow. Presence of other users in the traffic stream begins to be noticeable. The level of comfort and convenience is somewhat less than LOS A because the presence of others in the traffic stream begins to affect individual behavior.
C	Stable flow. Operation of individual users becomes significantly affected by interactions with others in the traffic stream. The general level of comfort and convenience declines noticeably at this level.
D	Stable but high-density flow. The driver experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.
E	Flow at or near capacity level. Comfort and convenience levels are extremely poor, and driver frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.
F	Forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable.

Source: Transportation Research Board, *Special Report 209: Highway Capacity Manual*, 1994.

splits (the percentage of vehicles on a facility traveling in the peak direction), peaking characteristics (the percentage of total daily traffic traveling within the peak hour), and roadway characteristics (type of facility and number of travel lanes). In addition, the number of traffic signals per mile is a determinant of capacity on arterials. Tables A-3-1 through A-3-6 (see Appendix 3) present the volume-to-capacity thresholds at each level of service for various types of transportation facilities. In performing the transportation analysis at Parnassus Heights and the potential Major New Sites, capacity values were refined based on local peaking characteristics, directional splits, lane configuration variations, signal progression and other

factors such as the effects of flow metering. The derived capacities for each study corridor are shown in the level of service tables in Appendix 3.

Peak-hour LOS is determined by the peak-hour v/c ratio which is based on the derived peak-hour capacity. Daily LOS, by definition, represents the most congested hour of the day. Therefore, the daily LOS reflects worst-case conditions generalized from the worst of the two peak hours.

b. Analysis Scenarios

The 1996 LRDP provides a long-term plan for UCSF development over the next 15 years. To evaluate the transportation effects of UCSF activities under the LRDP, the transportation analyses relies upon use methodologies and assumptions appropriate for each UCSF site, as follows:

Parnassus Heights - For the Parnassus Heights site, the City of San Francisco Planning Department's growth factor of one percent per year was applied over the 15-year period from 1995 to 2010 to yield future traffic projections. That one percent per year growth was assumed to include UCSF growth at Parnassus Heights, conservative (high) growth in overall traffic on major roadways in the vicinity and any potential changes in land use in the Parnassus Heights vicinity.

Brisbane Baylands/Executive Park - Although this Major New Site is in two jurisdictions — Brisbane and San Francisco — the larger portion of development would be within the City of Brisbane. The City of Brisbane has current traffic projections for the year 2013 from its *General Plan FEIR*,³ which have been used for the year 2010 in this EIR to achieve a consistent forecast year and facilitate a comparison of transportation impacts between the Major New Sites. Those Brisbane projections were considered more current for local traffic conditions than the Metropolitan Transportation Commission (MTC) Model. Because the General Plan FEIR did not forecast traffic conditions on US 101, the MTC Model was used for this purpose.

Harbor Bay - Sources of traffic projections in the Harbor Bay area include the City of Alameda's *General Plan*, the Alameda County Congestion Management Agency (CMA) Model the *Airport Project Roadway EIR*, and preliminary analysis conducted for the *Airport Master Plan EIR*.⁴ The traffic projections in the *Airport Roadway Project EIR* were generated using a refined version of the CMA model and are generally higher than traffic forecasts from preliminary analysis conducted for the *Airport Master Plan EIR*. In addition, the *Airport Roadway Project EIR* traffic projections are more current than those contained in the *City of Alameda General Plan*. For those reasons, future base projections in this EIR use the *Airport Roadway Project EIR*, which projects traffic in the area to the year 2010.

Mission Bay - Sources of traffic projections for the Mission Bay area include the *Mission Bay FEIR*, the *Terminal Separator Structure/Mid-Embarcadero Transportation Study*, and the MTC Model.⁵ The MTC Model was selected as the best available tool because it is more current than the Mission Bay EIR and provides more coverage of the study area than the Mid-Embarcadero study. The MTC Model projects traffic to the year 2010.

c. Project Impact Methodology

For Parnassus Heights and the Major New Sites, this EIR assesses future traffic conditions, with and without development assumed in the 1996 LRDP. The methodology for deriving traffic forecasts with and without the 1996 LRDP differs slightly for the Mission Bay Major New Site than other sites. The MTC Model does not account for employment levels similar to a Major New Site at Mission Bay. For this reason, traffic associated with the Major New Site at Mission Bay was treated as an increment of additional development to MTC Model year 2010 projections at Mission Bay.

For Parnassus Heights, Brisbane Baylands/Executive Park, and Harbor Bay, 1996 LRDP traffic has been subtracted from future projections to establish 2010 without the LRDP conditions because the future traffic projections for those sites were assumed to include development of UCSF uses under the 1996 LRDP. At the Parnassus Heights site, traffic projections resulting from the growth rate defined by the City of San Francisco *Guidelines for Environmental Review: Transportation Impacts* are assumed to include all cumulative development, unless a project represents such a large percentage of overall growth as to be an unreasonable share of the anticipated horizon year growth.⁶ In fact, the 1996 LRDP activities at Parnassus Heights were found to represent a very small portion of the anticipated year 2010 growth. In addition, the 15 percent growth rate assumed to occur by the year 2010 probably overstates background traffic growth on through routes and the development potential of the Parnassus Heights area because it is fully built out and zoning changes are unlikely.

At the Brisbane Baylands/Executive Park and Harbor Bay Major New Sites, it is reasonable to assume that the 1996 LRDP growth would be included within the future year traffic projections because land uses comparable to or more intensive than the Major New Site were included in the traffic projection assumptions for those sites. This is described in more detail in Section C of Chapter 12, Development Scenario.

The analysis of traffic impacts associated with the 1996 LRDP relies on a four-step modeling process which considers traffic generation, mode split, traffic distribution and traffic assignment. In this process, total person trips are estimated for the 1996 LRDP development. Those trips are assigned to the various travel modes (e.g., driving, walking, transit) to yield person-trip projections for all travel modes and an estimate of the number of vehicle trips generated by the 1996 LRDP at a particular site. Trip distribution estimates are then made by identifying the end points of LRDP-generated trips (e.g., 65 percent to San Francisco, 10 percent to the East Bay, and 25 percent to the South Bay). Finally, vehicle trips are assigned to paths or travel routes (e.g., Third Street south to Cesar Chavez Street; west to US 101 south) between the sites and destination points based on the shortest possible route to the vehicle destination.

This traffic analysis provides LOS calculations for existing conditions and for the year 2010, with and without the LRDP. A 2010 forecast year was selected to analyze the traffic impacts of the LRDP because full implementation of the LRDP is not expected until the end of the LRDP planning period in 2010, and is not likely to occur until later. Therefore, use of the 2010

d. Assessment of Significance

For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures. forecast year provides a better assessment of the LRDP's potential impacts on traffic conditions.

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1. The Metropolitan Transportation Commission, *1994 Regional Transportation Plan for the San Francisco Bay Area*, June 1994.
 2. Florida Department of Transportation, *Florida's Level of Service Standards and Guidelines Manual for Planning*, 1988.
 3. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994.
 4. a) City of Alameda, *City of Alameda General Plan*, February 1991.
b) Kolve Engineering, *Airport Roadway Project Environmental Impact Report Transportation Study*, August 2, 1993.
 5. a) City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990.
b) Kolve Engineering, *Terminal Separator Structure/Mid-Embarcadero Preliminary Transportation Report*, January 1994.
 6. City and County of San Francisco, Department of City Planning, *Guidelines for Environmental Review: Transportation Impacts*, July 1991.

D. AIR QUALITY

1. REGULATORY BACKGROUND

A series of national, state and local laws designed reduce air pollutant emissions provide the basis for air pollutant control efforts. The major control efforts focus on “criteria pollutants” for which ambient standards have been established on the basis of research findings. Other air pollutants, designated “toxic air contaminants,” may cause an increase in mortality or serious illness depending upon specific exposure circumstances, and they are regulated on the basis of probable health risk established by research findings. The regulatory background for each is discussed below.

a. Criteria Pollutants

Federal Regulations

Several potentially harmful chemical compounds are emitted by transportation, commercial, industrial and agricultural activities throughout the United States. The US Environmental Protection Agency (EPA) has the authority to set federal ambient air quality standards for these pollutants. These standards are intended to protect those people most susceptible to air pollutants, specifically the elderly, very young children, people already weakened by illness and those persons engaged in strenuous work or exercise (referred to collectively as "sensitive receptors"). These standards are justified by published research findings that relate ambient exposure levels to adverse health effects, hence they are known as “criteria” air pollutants.

The five major criteria air pollutants are: ozone, carbon monoxide (CO), suspended particulate matter less than 10 microns in diameter (PM₁₀), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂). The federal standards, given in Table 3-2, provide acceptable concentrations for specific pollutants to protect sensitive receptors from the adverse effects indicated in Table 3-3.

The Clean Air Act of 1970 (CAA) required each state to identify areas within its borders that did not meet federal standards (i.e., non-attainment areas) for criteria air pollutants and to prepare a State Implementation Plan, subject to EPA approval, which would lead to attainment. Subsequently, states that did not meet federal standards (including California) were required to implement EPA interim policies. The 1990 CAA Amendments specified new strategies for attaining federal air quality standards, including mandatory three percent annual pollutant emission reductions in non-attainment areas.

State Regulations

The California Air Resources Board coordinates and oversees both state and federal air pollution control programs in California, including the preparation of the State Implementation Plan. As part of this responsibility, the Air Resources Board monitors existing air quality, establishes state air quality standards, which in many cases are more stringent than the federal

TABLE 3-2
FEDERAL AND STATE AIR QUALITY STANDARDS¹

Pollutant	Averaging Time	California Standard	Federal Standard
Ozone	1-hour	0.09 ppm (180 $\mu\text{g}/\text{m}^3$)	0.12 ppm (235 $\mu\text{g}/\text{m}^3$)
Carbon Monoxide	1-hour	20.00 ppm (23 mg/m^3)	35.00 ppm (40 mg/m^3)
	8-hour	9.00 ppm (10 mg/m^3)	9.00 ppm (10 mg/m^3)
Nitrogen Dioxide	1-hour	0.25 ppm (470 mg/m^3)	—
	Annual Average	—	0.053 ppm (100 mg/m^3)
Sulfur Dioxide	1-hour	0.25 ppm (655 mg/m^3)	—
	3-hour	—	1300 mg/m^3 (0.02 ppm)
	24-hour	0.04 ppm (105 mg/m^3)	365 $\mu\text{g}/\text{m}^3$ (0.14 ppm)
	Annual Average	—	80 $\mu\text{g}/\text{m}^3$ (0.03 ppm)
Suspended Particulate Matter (PM_{10})	24-hour	50 $\mu\text{g}/\text{m}^3$	150 $\mu\text{g}/\text{m}^3$
	Annual Geometric Mean	30 $\mu\text{g}/\text{m}^3$	—
	Annual Arithmetic Mean	—	50 $\mu\text{g}/\text{m}^3$

Notes:

1. Concentrations are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Ppm in this table refers to ppm by volume, $\mu\text{g}/\text{m}^3$ in this table refers to micrograms per cubic meter.
2. California standards for ozone, carbon monoxide, sulfur dioxide (1 hr), nitrogen dioxide and particulate matter - PM_{10} - are values that are not to be exceeded.
3. National standards, other than for ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentration above the standard is equal to or less than one.

Source: California Air Resources Board, 1994.

standards shown in Table 3-2, limits emissions from vehicular sources and administers grants to local agencies. The 1988 California Clean Air Act identified air quality goals for the State and established planning mechanisms and regulatory strategies to attain the state ambient air quality standards by the "earliest practicable date."

Regional Regulations

Planning for the attainment and maintenance of federal air quality standards in the Bay Area is the joint responsibility of the Bay Area Air Quality Management District (BAAQMD), the Association of Bay Area Governments (ABAG), and the Metropolitan Transportation Commission. The present *Ozone and Carbon Dioxide Attainment and Maintenance Plans* (1993 and 1994) led to an important milestone in April 1995 when the EPA redesignated the

TABLE 3-3
HEALTH EFFECTS SUMMARY OF THE MAJOR CRITERIA AIR POLLUTANTS

Air Pollutant	Adverse Effects
Ozone	Eye irritation. Respiratory function impairment.
Carbon Monoxide	Impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin. Aggravation of cardiovascular disease. Impairment of central nervous system function. Fatigue, headache, confusion and dizziness. Can be fatal in the case of very high concentrations in enclosed places.
Nitrogen Dioxide	Risk of acute and chronic respiratory illness.
Sulfur Dioxide	Aggravation of chronic obstruction lung disease. Increased risk of acute and chronic respiratory illness.
Total Suspended Particulate Matter	Increased risk of chronic respiratory illness with long exposure. Altered lung function in children. With SO ₂ , may produce acute illness.
Suspended Particulate Matter	May be inhaled and possibly lodge in and/or irritate the lungs.

Source: BAAQMD, 1985.

Bay Area as an attainment area for the federal ozone standard. The EPA is expected to do the same for the federal carbon monoxide standard in the near future.

The 1994 *Clean Air Plan* was prepared by the BAAQMD in response to the state mandates of the California Clean Air Act. It incorporates many of the control measures previously established in the 1979 and 1982 Air Quality Plans, removing some exemptions and adding new control measures. The plan does not anticipate attainment of the state ozone or PM₁₀ standards.

The BAAQMD is the primary reviewer of air quality impact evaluations in CEQA documents, which are prepared in accordance with *Air Quality and Urban Development: Guidelines for Assessing Impacts of Projects and Plans* (BAAQMD, November 1985), and the *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans* (Draft, BAAQMD, December 1995).

The BAAQMD, through its New Source Review authority, develops and enforces permit conditions for most stationary sources of air pollutants in the Bay Area. The BAAQMD exempts new or modified stationary sources, such as power plants, from permit requirements to implement Best Available Control Technology (BACT) provided that: 1) the source does not

emit more than 10 pounds per day (150 pounds per year) of nitrogen oxides, reactive organic gases, suspended particulate matter or sulphur dioxide; and 2) it is not subject to any source-specific BAAQMD rules.

The BAAQMD had established an Employer-based Trip Reduction Rule that required employers with 100 or more workers to develop programs that reduce drive-alone trips during commute hours, but Section 4029 of the Health and Safety Code, passed in 1995, prohibits the BAAQMD and other public agencies from implementing trip reduction programs unless they are expressly required by federal law and their elimination would result in the imposition of federal sanctions. Currently, the BAAQMD continues to promote employer-based trip reduction programs as voluntary control measures.

b. Odorous Substances

Odorous substances are regulated under BAAQMD Regulation 7. This regulation prohibits the emission of odorous compounds which remain odorous after dilution with a specified quantity of odor-free air. Specific maximum allowable emissions of the following odorous substances are specified: dimethylsulfide, ammonia, mercaptans, phenolic compounds and trimethylamine.

c. Toxic Air Contaminants

Toxic air contaminants are a category of air pollutants which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health. Adverse health effects of toxic air contaminants may be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, or long term (chronic) non-carcinogenic. Several hundred such pollutants are currently regulated by various federal, state and local programs, as described below, but there are no ambient air quality standards for those materials.

Federal Regulations

Under Title III of the 1990 federal CAA, the number of regulated toxic substances was expanded to 189 compounds, and the EPA was directed to develop standards for toxic air pollutants, including consideration of economic issues in the control criteria, and to investigate the exposure risk from toxic air contaminants in urban areas.

State Regulations

The California Air Resources Board is responsible for identifying specific toxic air contaminants through research and evaluation. Assembly Bill (AB) 2728 mandated state recognition of the 189 toxic air contaminants identified by the federal 1990 CAA Amendments. The Air Toxics "Hot Spots" Information and Assessment Act, AB 2588, required that toxic risk assessments include the toxic air contaminants specified in the *Risk Assessment Guidelines* of the California Air Pollution Control Officers Association (CAPCOA).

Regional Regulations

The BAAQMD's current risk management policy requires that any incremental increase in emissions of toxic air contaminants from new or modified stationary sources be evaluated for human health impacts, especially cancer risk, using the CAPCOA Guidelines. Some sources may be exempt if emissions of toxic air contaminants are below certain annual emission levels set by the BAAQMD.

The BAAQMD risk criteria allow a permit to be granted for a new or modified stationary source if the source meets either of the following health impact criteria:

- the estimated incremental cancer risk from the project is less than one in one million, or
- the estimated risk is less than ten in one million, and the Best Available Control Technology for Toxics will be applied.

The BAAQMD may deny the permit if the estimated risk is greater than ten in one million.

The BAAQMD is also reviewing the toxic emissions of major existing facilities in the Bay Area through the inventories and risk assessments filed under AB 2588. In 1991, the BAAQMD adopted a "Toxic Air Contaminant Reduction Plan," which proposed to reduce the toxicity of emissions from sources subject to BAAQMD regulation to less than 50 percent of the 1989 levels by 1995. The plan focused on the process of developing administrative rules, defining control programs and collecting background information. According to the latest Toxic Air Contaminant Control Program Annual Report, the Bay Area had attained the stated reduction goal.

2. REGIONAL SETTING

a. Climate and Air Quality

The climate of the San Francisco Bay Area is influenced by the marine weather systems which originate over the Pacific and are drawn inland by the jet stream. During the winter, there are lengthy periods of rain and drizzle. In the summer, precipitation is rare, but fog is frequent along the coast. The formation of elevated inversions, which occur when a layer of cool air is suspended between warm air layers above and below, is common in the late summer and fall. Surface inversions, formed when cool air is trapped close to the surface by a layer of warm air above it, are common in the winter. Inversions combined with low surface wind speeds trap pollutants in the surface air layer, with consequent adverse health impacts to the Bay Area population.

b. Criteria Air Pollutants and Sources

Current major air pollutant problems in the Bay Area result from its extensive industrial and urban development, especially from the widespread use of motor vehicles. Topographic and meteorological conditions often reduce the ability of the atmosphere to disperse air pollutants.

Ozone

Ozone is a secondary pollutant which forms as a result of the interaction of reactive organic gases (ROG) and oxides of nitrogen in the presence of sunlight. Motor vehicles are the primary source of ROG and nitrogen oxides. Because of the direct link between vehicular emissions and ozone formation, air quality programs focus on reduction of mobile source emissions. Historically, ozone standards have been violated most often in the Santa Clara, Livermore and Diablo Valleys because local topography and meteorological conditions favor the buildup of ozone and its precursors there. In April 1995, the Bay Area was designated an attainment area (i.e., met the standard) for the federal ozone standard based on 1990-1993 monitoring data.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas. About 65 percent of the carbon monoxide in the Bay Area is generated by motor vehicles. Carbon monoxide concentrations are strongly influenced by meteorological factors such as wind speed and atmospheric stability. The 1-hour and 8-hour CO standards have been occasionally exceeded in the San Francisco, San Jose and Vallejo areas, all of which are subject to high traffic density and frequent surface inversions during the winter months.

Nitrogen Oxides

The major sources of nitrogen oxides (NO_x) are vehicular, residential and commercial fuel combustion. Concentrations of nitrogen dioxide, the most abundant form of ambient NO_x, are highest in the South Bay, where the standard was last exceeded in 1980. Nitrogen dioxide concentrations have not been recorded in excess of the standard at any monitoring station in the Bay Area since that time.

Sulfur Dioxide

Sulfur dioxide (SO₂) is primarily the result of the burning of high sulfur fuels for activities such as electricity generation, petroleum refining and shipping. The highest levels of sulfur dioxide are recorded by monitoring stations located in a relatively narrow crescent along the bayshore of northern Contra Costa County. The sulfur dioxide standard is currently being met throughout the Bay Area. Bay Area seasonal maximums rarely exceed 50 percent of the standard, and sulfur dioxide levels at most Bay Area monitoring stations are less than 10 percent of the standard.

Particulate Matter

Particulate (dust) levels in the Bay Area are low near the coast. They increase with distance inland and reach their highest levels in dry, sheltered valleys, such as the Santa Clara, Diablo and Livermore Valleys. The largest human-generated sources are motor vehicle travel over

paved and unpaved roads, demolition and construction activities, agricultural operations and burning. Natural sources (i.e., wind-raised dust) are also significant. Particulate standards now focus on particulates that are small enough to be inhaled (i.e., those less than 10 microns in diameter, referred to as PM₁₀). The state ambient air quality standards for PM₁₀ are exceeded regularly in the Bay Area.

c. San Francisco Bay Area Emission Inventory of Criteria Pollutants

The BAAQMD has compiled emission inventories for reactive organic gases, suspended particulate matter, nitrogen oxides and carbon monoxide for major source categories in the nine San Francisco Bay Area counties, as shown through the year 2010 in Figure 3-1.

Particulate matter emissions showed a slight decline in the early 1980s followed by a steady increase, mostly due to a similar growth in motor vehicle travel.

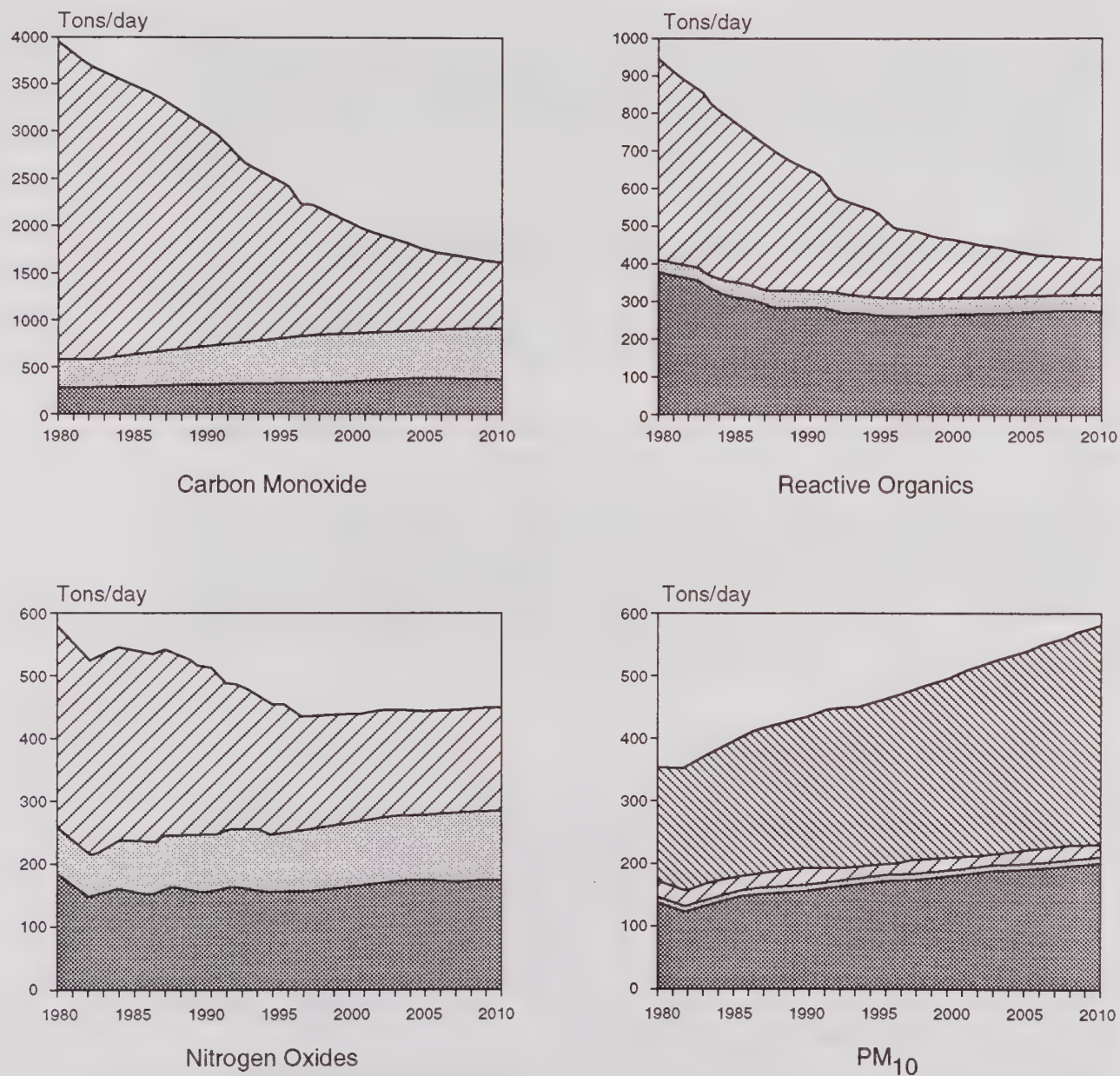
Reductions in reactive organic gases, nitrogen oxides and carbon monoxide are attributed to the emission controls imposed on motor vehicles and stationary sources. Projected Bay Area emissions for the years 1995, 2000 and 2010 are presented in Table 3-4. These emissions forecasts take into account the expected population/employment and motor vehicle travel growth in the Bay Area, and the reduction in emissions of criteria air pollutants which would result from vehicle emission controls and fuel reformulation.

d. Air Quality Monitoring Data

The BAAQMD operates a regional monitoring network which measures the ambient concentrations of the major criteria air pollutants, including ozone, nitrogen dioxide, carbon monoxide and particulate matter. Other monitoring stations track ambient levels of 11 potential toxic air contaminants, specifically vinyl chloride, methylene chloride, chloroform, ethylene oxide, methyl chloroform, carbon tetrachloride, trichloroethylene, benzene, ethylene dibromide, perchloroethylene and toluene. No federal or state ambient standards have been established for these toxic air contaminants to date. Table 3-5 shows 1993 data for risk due to ambient concentrations of toxic air contaminants in the Bay Area.

e. Sensitive Receptors

Occupants of land uses such as schools, playgrounds, child-care centers, retirement homes, convalescent homes, hospitals and clinics are more sensitive to air pollutants because the young, the old, and the infirm are more susceptible than the general public to respiratory infections and other health problems related to poor air quality. Occupants of residential areas are also sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Users of recreational land uses are moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, increasing air pollutant intake. Occupants of industrial and commercial areas are the least sensitive to air



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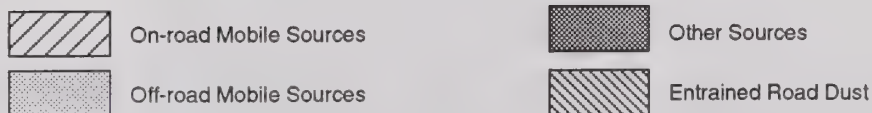


TABLE 3-4: BAY AREA CRITERIA POLLUTANT EMISSIONS PROJECTIONS

(Tons/Day - Annual Average)

	CO	ROG ¹	NO ₂	SO ₂	PM ₁₀ ²
1995					
Total Emissions	2425	535	454	102	462
Motor Vehicle Emissions	1598	242	200	10	321
(Percent of Total)	(66%)	(45%)	(44%)	(10%)	(70%)
2000					
Total Emissions	1963	464	441	107	501
Motor Vehicle Emissions	1108	166	171	10	355
(Percent of Total)	(56%)	(36%)	(39%)	(9%)	(71%)
2010					
Total Emissions	1600	406	449	115	582
Motor Vehicle Emissions	697	88	161	12	427
(Percent of Total)	(44%)	(22%)	(36%)	(10%)	(73%)

Notes:

1. Reactive organics (excluding emissions from natural vegetation).
2. Including entrained road dust.

(Projections are based on the Base Year 1990 Air District Emission Inventory.)

Source: BAAQMD & ABAG, *Improving Air Quality Through Local Plans & Programs*, October 1994.

pollution because exposure periods are intermittent and relatively short, and the working population is generally the healthiest segment of the population.

3. STANDARDS OF SIGNIFICANCE

A project would be considered to have a significant adverse impact on the environment if it would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollution concentrations. The BAAQMD recommends a specific set of criteria for judging the significance of air quality effects of individual development projects which require permits from BAAQMD. For purposes of this EIR, UCSF is applying the BAAQMD criteria to entire UCSF

**TABLE 3-5: RISK DUE TO AMBIENT CONCENTRATIONS
OF TOXIC AIR CONTAMINANTS IN THE BAY AREA**

Toxic Air Contaminant	Concentration (ug/m ³) ¹	Risk (per million)
Benzene	5.20	151
1,3 Butadiene	0.57	97
Carbon Tetrachloride	0.72	30
Vinyl Chloride	0.80	31
Formaldehyde	2.50	15
Perchloroethylene	2.66	16
Acetaldehyde	3.30	9
Methylene Chloride	2.55	3
Trichloroethylene	0.44	1
Chloroform	0.10	1
Asbestos (PCM fibers/m ³) ²		40
Chromium, hexavalent	0.0004	56
Dioxins	4.0E-7	13
PAH (total)	0.0031	5
Cadmium	0.0013	5
Arsenic	0.00066	2
Nickel	0.0046	1
Beryllium	0.00002	1
Total		477

Notes:

1. Micrograms per cubic meter of air.
2. Phase contrast microscopy (PCM) is a technique that measures total fibers, not necessarily just asbestos.

Source: BAAQMD, 1993, *Status of Bay Area Air Quality Management District Toxic Air Contaminant Control Program-Annual Report*.

development sites (e.g., the Parnassus Heights site), which is a more conservative approach than BAAQMD's project-specific approach. Therefore, the LRDP would have a significant adverse impact on the environment if the proposed LRDP development and uses would:

- cause total criteria pollutant emissions at or from any UCSF site (i.e., from both stationary and mobile sources) to equal or exceed the following thresholds:

Reactive Organics	80 lb/day
Nitrogen Oxides	80 lb/day
Particulate Matter (PM ₁₀)	80 lb/day

- induce mobile source carbon monoxide (CO) emissions at or from any UCSF site which would cause or substantially contribute to violations of the federal or state ambient CO standards; or
- expose receptors to toxic air contaminant emissions at or from stationary sources at any UCSF site that 1) result in a cancer risk greater than ten cancer cases per one million people exposed in a lifetime; or 2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.

No standards of significance have been adopted by any regulatory agency with regard to, and no permitting procedure exists for, toxic air emissions from mobile sources or with regard to cumulative toxic air contaminant emissions from mobile and stationary sources, and therefore none are used here.

4. IMPACT METHODOLOGY

a. Construction-phase Air Pollutant Emissions

EPA measurements of dust emissions during construction activities provide a means of projecting worst-case impacts. About 1.2 tons of dust are emitted per acre of construction per month. About 35 percent of the dust is made up of large-diameter particulate matter, which is a soiling nuisance rather than a health threat. The remaining fraction, PM₁₀, produced at a rate of about 0.77 tons per acre worked per month, could aggravate respiratory problems of a sensitive population living near the construction activity. The BAAQMD's approach to CEQA analyses of construction PM₁₀ impacts is to emphasize implementation of effective and comprehensive dust control measures rather than detailed quantification of emissions.

The EPA has compiled nitrogen oxide, reactive organic gases and carbon monoxide emission rates for the common types of construction equipment, but their application to the proposed LRDP activities is limited because plans are not yet specific enough to provide the equipment type, number, and use intensity data needed for an accurate emission calculation related to construction activities. However, regionwide emissions from construction activities anticipated in the Bay Area have already been included in the BAAQMD's emission inventories and are not expected to impede attainment or maintenance of ozone or carbon monoxide standards in the Bay Area. Even if gaseous emissions were estimated, their total would not be significant.

b. Vehicular Air Pollutant Emissions

Calculations of motor vehicle pollutant emissions resulting from LRDP activities used: 1) on-road vehicular emission rates generated by the California Department of Transportation's EMFAC7F1.1 model; 2) daily trips and trip mode data supplied by traffic consultants for the EIR; 3) average trip lengths derived from UCSF Parnassus Heights staff surveys; and 4) percentages of trips begun when the vehicle engine is cold as appropriate to project trip types.

c. Roadside Carbon Monoxide Concentrations

Carbon monoxide levels were modeled, using the CALINE4 computer model, along selected arterial roadway segments in the vicinity of Parnassus Heights and the potential Major New Sites. Carbon monoxide levels in year 1995, year 2010 without the LRDP, and year 2010 with the LRDP were estimated. The CALINE4 model was initialized, as recommended by the BAAQMD, with meteorological parameters and carbon monoxide background levels characteristic of worst-case carbon monoxide dispersion conditions in the Bay Area, EMFAC7F1.1 carbon monoxide emission rates, and traffic data provided by Fehr and Peers. One-hour and eight-hour average carbon monoxide concentrations were modeled at curbside.

d. Stationary Source Criteria Air Pollutant Emissions

Development of a Major New Site would include a central utilities plant, probably a cogeneration plant. Existing UCSF sites could require modifications of on-site electricity generation facilities, steam boilers or incinerators. No incinerator, which is one potential source of emissions, would be constructed at the Major New Site. If air pollutant emissions from any stationary sources exceeded established BAAQMD significance thresholds, UCSF would have to apply for a new or modified Permit to Operate. Implementation of BACT would be required before the Permit could be granted. The granting of a Permit implies that the BAAQMD believes that the stationary source air quality impacts would be insignificant.

e. Stationary Source Air Toxic Emissions

The primary sources of toxic air contaminant emissions from LRDP activities would be research activities, boilers and generators. Clinical care uses would not be developed at the Major New Site, and therefore this potential source of toxic contaminant emissions was not evaluated in this EIR.¹

Toxic air contaminant emissions and their consequent health risks at and near the Parnassus Heights site were evaluated in the *Assessment of Environmental Impacts for the University of California, San Francisco, Phase IIA, Emissions from Teaching and Research Facilities, and Phase III, Health Risk Assessment*.² Using the maximum risk from Parnassus Heights research activities to the surrounding population as a baseline, the maximum risk to the population surrounding each Major New Site was determined by multiplying the maximum research activity risk near Parnassus Heights by the research floor area ratio (i.e., the anticipated gross floor area of the Major New Site research uses divided by the gross floor area of Parnassus Heights research uses in 1989).

Toxic air contaminants would also be generated by the Major New Site's central utilities plant. Health risks from the Parnassus Heights central utilities plant (now under construction) were evaluated in *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*.³ The size of the new utilities plant that would serve the Major New Site is not known, but it is reasonable to assume that the Major New Site utilities plant would be of similar size and operation as the Parnassus Heights plant based on comparable size and needs of the two

sites. The maximum risk calculation to the population surrounding each Major New Site was calculated by using the maximum risk projected for the Parnassus Heights Central Utilities Plant, documented in that EIR.

Additional toxic air contaminant emissions would result from other miscellaneous sources at the Major New Site (i.e., steam boilers and emergency generators), but these are expected to be much smaller than research and central utilities plant emissions based on prior studies of such sources at existing UCSF sites.

f. Mobile Source Air Toxic Emissions

Over 50 percent of the cancer risk associated with ambient levels of toxic air emissions in the Bay Area results from vehicle emissions. The LRDP would contribute to ambient toxic air emission levels in the San Francisco Bay Area as a result of new vehicle trips associated with the LRDP. However, no criteria or standards of significance have been adopted by any regulatory agency with regard to, and no permitting procedure exists for, toxic air emissions from mobile sources or with regard to cumulative toxic air contaminant emissions from mobile and stationary sources. Therefore, the air quality analysis in this EIR addresses the impact of toxic air emissions from mobile sources only on a qualitative basis.

g. Assessment of Significance

For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

-
1. University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996, p. 157.
 2. Radian Corporation, *Assessment of Environmental Impacts for the University of California, San Francisco: Phase IIA, Emissions from Teaching and Research Facilities, and Phase III, Health Risk Assessment*, August 31, 1989.
 3. University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*, SCH No. 93013064, January 5, 1994.

E. NOISE

1. REGULATORY BACKGROUND

a. Basic Concepts

Sound is a form of energy transmitted via atmospheric pressure variations. Its most obvious characteristics are amplitude, or loudness, and frequency, or pitch. The standard unit of sound amplitude is the decibel (dB). Most common sounds contain many different frequency components. Because the human ear is not equally sensitive to all frequencies, a frequency-dependent weighting scheme is imposed whenever sound is measured. A-weighted decibels (dBAs) handle a sound's frequency components in a manner approximating that of the human ear. Table 3-6 provides examples of the A-weighted sound levels associated with common situations.

The judgement of the listener(s) is crucial in discriminating between sound and noise; noise is simply sound that is unacceptable to the listener for a variety of reasons. Intense noise can cause physiological damage, but it is more usual for noise to interfere with sleep, speech, recreation or work performance.

Several indicators have been developed to gauge the severity of environmental noise. All reflect the consensus among researchers that the adverse impacts of noise correlate well with high acoustical energy content, hence their units are dBAs. Some include consideration for the time of its occurrence. Three of the most commonly used indicators are:

- Leq, the equivalent energy noise level, is the average acoustic energy content of noise during the time it lasts. The Leq of two different time-varying noise events are the same if they deliver the same acoustic energy to the ear during exposure, no matter what time of the day or night they occur.
- Ldn, the day-night average noise level, is a 24-hour average Leq with a 10 dBA "penalty" added to noise occurring during the hours of 10:00 pm to 7:00 am to account for the greater nocturnal noise sensitivity of people.
- CNEL, the community noise equivalent level, is very similar to Ldn, but a 5 dBA penalty is added to noise during the evening hours, 7:00 pm to 10:00 pm.

Judgements regarding the severity of noise level increments are based on the following general observations:

- a 1 dBA increment is the smallest the human ear can distinguish, as determined by laboratory experiment;
- a 3 dBA increment is small but perceptible to most people in an out-of-laboratory setting (a doubling of source strength, such as doubling traffic volumes, gives a 3 dBA increment);

TABLE 3-6
TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT¹

A-Weighted Sound Level in Decibels	Noise Environments and Sources	Subjective Impression
140		
130	100' From a Civil Defense Siren	
120	200' From a Jet Takeoff	Pain Threshold
110	Rock Music Concert	
100	50' From a Pile Driver or 100' From an Ambulance Siren	Very Loud
90	Boiler Room or 50' From Freight Cars Printing Press Plant	
80	In Kitchen with Garbage Disposal Running or 50' From a Pneumatic Drill	
70		Moderately Loud
60	Data Processing Center or 10' From a Vacuum Cleaner Department Store	
50	Private Business Office or 100' From Light Traffic 200' From a Large Transformer	
40		Quiet
30	Quiet Bedroom or 5' From a Soft Whisper	
20	Recording Studio	
10		Threshold of Hearing
0		

Notes:

1. This table is meant to give the reader a sense of A-weighted sound levels by providing an example of a noise source or an environment corresponding to a certain noise level. For example, a person at a rock music concert would experience noise levels of 110 dBA. Also, a person standing 200 feet from a jet takeoff would experience noise levels of 120 dBA.

Source: EIP Associates

- a 5 dBA increment can be expected to elicit sporadic complaints from any community exposed; and
- a 10 dBA increment, subjectively experienced as a doubling in loudness, would almost certainly elicit widespread complaints from any community so exposed.

In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile driving and operating heavy earth-moving equipment.

b. Federal Regulations

In response to the Noise Control Act of 1972, the EPA compiled scientific information on the effects of noise exposure and defined acceptable exposure levels to protect public health and welfare. These protective exposure levels were expressed in terms of suggested limits on the 24-hour average Leq or the Ldn. The EPA findings served as the basis for the establishment of state and local noise exposure standards.

c. State Regulations

In order to limit population exposure to physically damaging and psychologically disruptive noise, the California Department of Health Services (DHS) Office of Noise Control has issued noise exposure guidelines and a model noise ordinance. The guidelines established four categories of noise severity in the *outdoor* environment: 1) "normally acceptable" levels place no undue burden on affected receptors and need no mitigation; 2) "conditionally acceptable" levels require some mitigation of exposure, as established by an acoustic study; 3) "normally unacceptable" levels are so severe that extraordinary noise reduction measures are required; and 4) "clearly unacceptable" levels cannot be mitigated. The DHS ranges for these four categories vary with the land use affected. The original DHS guidelines serve as a model for use by counties and cities in the state. Most have changed the original DHS range specifications to some extent to suit their local requirements.

Title 24 of the California Administrative Code establishes standards governing *indoor* noise levels that apply to all new multifamily residential units (i.e., hotels, motels, apartments, condominiums and other attached dwellings) in California. These standards require that acoustical studies be performed prior to construction at residential building locations where the existing exterior Ldn exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum Ldn noise levels to 45 dBA in any habitable room. Although there are no generally applicable interior noise standards pertinent to all uses, many communities in California have adopted a 45 dBA Ldn as an upper limit on interior noise in all residential units.

d. Local Regulations

Local noise exposure standards which regulate traffic noise exposure, and ordinances which regulate construction and other nuisance noise, can vary among local jurisdictions. Local noise standards and ordinances are listed in the Site-Specific Standards and Methods sections for each existing or proposed UCSF site.

2. REGIONAL SETTING

Noise sources and exposure circumstances vary for sensitive receptors considerably from place to place. Noise sources, measured noise levels and receptor exposure circumstances are listed in the Site-Specific Standards and Methods sections for each existing or proposed UCSF site.

3. STANDARDS OF SIGNIFICANCE

Although UCSF is not subject to general plan standards or local noise ordinances, the standards set forth in such plans and ordinances are the basis for setting standards of significance for noise impacts. Because the relevant noise exposure standards vary among local jurisdictions, the criteria determining the significance of 1996 LRDP noise impacts will vary depending on the local jurisdiction of each existing or proposed LRDP site. These different criteria are summarized in the Site-Specific Standards and Methods section for each LRDP site. For purposes of this EIR, the 1996 LRDP would be considered to have a significant noise impact if the proposed LRDP development and uses would:

- require construction activities at any UCSF site which would not comply with local noise standards and requirements; or
- generate operational noise effects at or from any UCSF site in excess of noise levels set forth in local general plans or ordinances for adjacent areas based on their use, or if ambient noise levels in areas adjacent to LRDP development already exceed local noise levels set forth in local general plans or ordinances for such areas based on their use, contribute to an increase in average daily noise levels (Ldn) of 3 dBA or more at property lines.

4. IMPACT METHODOLOGY

a. Construction-Phase Noise Impacts

Most local noise ordinances are directed at noise impacts from construction equipment. Measurements of noise emissions from individual pieces of construction equipment with and without feasible noise control, as shown in Table 3-7, provide an indication of their worst-case impacts. Resultant noise from LRDP construction activities will be discussed relative to these data. UCSF's development plans under the LRDP are not yet specific enough to provide the

TABLE 3-7
CONSTRUCTION EQUIPMENT NOISE LEVELS BEFORE AND AFTER
MITIGATION (dBA)

Equipment Type	Noise Level at 50 Feet	
	Without Noise Control	With Feasible Noise Control ¹
Earthmoving		
Front Loaders	79	75
Backhoes	85	75
Dozers	80	75
Tractors	80	75
Scrapers	88	80
Graders	85	75
Trucks	91	75
Pavers	89	80
Materials Handling		
Concrete Mixers	85	75
Concrete Pumps	82	75
Cranes	83	75
Derricks	88	75
Stationary		
Pumps	76	75
Generators	78	75
Compressors	81	75
Impact		
Pile Drivers	101	95
Jack Hammers	88	75
Rock Drills	98	80
Pneumatic Tools	86	80
Other		
Saws	78	75
Vibrators	76	75

Notes:

1. Estimated levels obtainable by selecting quieter procedures or machines and implementing noise control features requiring no major redesign or extreme cost.

Source: *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, Bolt, Beranek, and Newman for the US Environmental Protection Agency, December 31, 1971.

equipment type, number and schedule data needed for accurate composite noise level estimates. Therefore, the probability of significant noise impacts will be based on the proximity of sensitive receptors to the LRDP construction sites.

b. Traffic Noise Impacts

Using the SOUND32 model, developed by Caltrans, traffic noise levels were estimated along selected arterial roadway and freeway segments for 1995 and two future year scenarios, 2010 without the LRDP and 2010 with the LRDP. The model was initialized with traffic data provided by Fehr and Peers, the LRDP transportation engineers. Adjacent land uses were determined by site vicinity survey. The day-night average noise level (Ldn) was modeled at the closest land use setback (e.g., for residential areas, the nearest home to the road centerline).

c. Operational Noise Impacts

UCSF uses at the Major New Site would result in operational noise from fans, chillers, heating, ventilating and air conditioning equipment and emergency generators. Based on prior environmental studies of similar UCSF uses at some of UCSF's existing sites, this EIR provides a general analysis of potential operational noise impacts at a Major New Site.

d. Assessment of Significance

For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

F. HAZARDOUS MATERIALS

1. REGULATORY BACKGROUND

a. Definition

A substance is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state or local regulatory agency, or if it has characteristics defined as hazardous by such an agency. A number of properties may cause a substance to be considered hazardous, including toxicity, ignitability, corrosivity or reactivity. Specific tests for toxicity, ignitability, corrosivity and reactivity are set forth in Title 22 California Code of Regulations (CCR), Sections 66693-66708. The California Department of Toxic Substances and Control (DTSC) defines "hazardous material" as a substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either: 1) cause, or significantly contribute to an increase in mortality or an increase in serious, irreversible or incapacitating illness; or 2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed. A "hazardous waste" is any hazardous material that is abandoned, discarded or recycled (California Health & Safety Code Section 25124).

b. Risk of Exposure

The health of the public is potentially at risk whenever hazardous materials are, or will be, used. A "hazardous" situation is one which has the potential to cause damage to human health or the environment. The "risk" to human health and the environment is determined by the *probability* of exposure to the hazardous material and the *severity* of harm such exposure would pose. Exposure of people to hazardous materials could occur in several ways: 1) improper handling or use of hazardous materials during the course of business; 2) failure of storage containment systems; 3) environmentally unsound treatment/disposal methods; 4) transportation accidents; or 5) fire, explosion or other emergencies.

c. Regulations

Hazardous materials handling and hazardous waste management are subject to many laws and regulations at all levels of government. Laws and regulations related to public health and safety are discussed in detail in Appendix 5 and briefly summarized below.

Hazardous Materials Management

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored and disposed of, and, in the event that such materials are

accidentally released, to prevent or to mitigate personal injury or damage to the environment. Laws and regulations require hazardous materials users to store hazardous materials appropriately and to train employees to manage these materials safely.

Worker Safety

The California Occupational Safety and Health Administration (Cal-OSHA) and the federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for ensuring worker safety in the handling and use of hazardous chemicals in the workplace. In California, Cal-OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices.

Hazardous Waste Handling

The California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage and disposal of hazardous waste under the Resource Conservation and Recovery Act (RCRA) and the California Hazardous Waste Control Law. Both laws impose "cradle-to-grave" regulatory systems (from generation until final disposal) for handling hazardous waste in a manner that protects human health and the environment. The DTSC permits and oversees all hazardous waste treatment, long-term storage and disposal activities.

Radioactive Materials

The Radiologic Health Branch of the Department of Health Services (DHS) administers the federal Atomic Energy Act, the California Radiation Control Law, and related federal, state and local regulations, which govern the receipt, storage, use, transportation and disposal of sources of ionizing radiation (radioactive material) and provide for protecting the users of these materials and the general public from radiation hazards.

Biohazardous Materials and Animals

The US Department of Health and Human Services Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health (NIH) prescribe containment and handling principles for use in microbiological, biomedical and animal laboratories. These guidelines are mandatory for institutions receiving NIH grant monies. Based on the potential for transmitting biological agents and the rate of transmission of these agents, and based on the quality and concentrations of biological agents produced in a laboratory, Biosafety Levels may be instituted as prescribed by these principles (see Chapter 4, Section F, Hazardous Materials).

The federal Animal Welfare Act specifies standards for registration, record keeping, handling, care, treatment and transportation of animals, including laboratory animals. The US Department of Agriculture enforces the Animal Welfare Act. In California, the California Department of Fish and Game also regulates animal use and care.

Medical Waste Handling

Medical (biohazardous) waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment and transportation. The DHS Medical Waste Management Program enforces the Medical Waste Management Act and related regulations. The law imposes a "cradle-to-grave" tracking system and a monitoring system for on-site treatment. Facilities that treat medical wastes must obtain a permit and are subject to annual audits. Medical waste is to be transported in closed red bags marked "biohazard" and placed inside hard-walled containers with lids.

Hazardous Materials Transportation

The US Department of Transportation regulates hazardous materials transportation between states. Within California, agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation. Together, these agencies determine acceptable container types and license hazardous waste haulers for hazardous waste transportation on public roads. Transportation of hazardous materials by the US Postal Service must follow Postal Service requirements.

Emergency Response to Hazardous Materials Incidents

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state and local government and private agencies, including response to hazardous materials incidents. The plan is administered by the state Office of Emergency Services, which coordinates the responses of other agencies including the Cal-EPA, the California Highway Patrol, the Department of Fish and Game, the Division of Drinking Water, and Environmental Management and Radiologic Health Branches of the Department of Health Services.

Water Quality

The San Francisco Bay Regional Water Quality Control Board (Regional Board) is required to ensure adequate protection of water quality and statewide uniformity in siting, operation and closure of waste-disposal sites in the San Francisco Bay Area. Participation by the Regional Board in the regulation of hazardous wastes includes classifying all proposed or current waste disposal sites in its region, and reviewing and determining the adequacy of facility closure and maintenance plans in regard to protection of water quality. In addition, the Regional Board

maintains a list of registered underground storage tanks at the direction of the State Water Resources Control Board. Leaking underground storage tanks must be reported to the Regional Board. Owners of new tanks must notify the Regional Board within 30 days of installation.

UCSF Hazardous Materials Policies and Procedures

The UCSF Office of Environmental Health and Safety (EH&S) has primary responsibility for developing compliance strategies for federal, state and local environmental laws and regulations, and for developing UCSF policies and procedures related thereto. In conformance with applicable laws and regulations, EH&S establishes procedures for packaging chemical wastes, issues authorizations to work with radioisotopes, and collects radioactive materials ready for discard from laboratories.¹

EH&S assists the campus community with the evaluation, planning, development and execution of health and safety programs. UCSF has established several safety committees including the Chemical Safety Committee, the Radiation Safety Committee, the Biosafety Committee and the Committee on Animal Research. Each committee is responsible for ensuring that appropriate procedures are followed for a particular area of concern.

EH&S also is responsible for inspecting laboratories and other campus facilities for conformance with applicable standards. In accordance with the UCSF radiation safety license, laboratories in which radioactive materials are used are subject to EH&S inspection with frequencies from once a month to once a year. Biosafety facilities are inspected with varying frequencies, depending on the types of biohazardous materials used. The Biosafety Officer or designee is responsible for conducting the inspections.

City and County of San Francisco

Permitting of underground storage tanks in San Francisco is done by City and County of San Francisco agencies, under the direction of the Regional Board.

Article 29 of the San Francisco Fire Code, added in January 1984, established a comprehensive system for processing permits and for monitoring the use and disposal of hazardous materials. The ordinance also established specific design and construction standards for underground storage tanks. The ordinance outlines provisions for handling abandoned hazardous waste storage facilities, as well as for maintenance of existing facilities.

2. REGIONAL SETTING

In general, public health and environmental issues are related to hazardous materials use in areas with past or current industrial activities. Soil and groundwater contamination resulting from such activities may expose construction workers to hazardous materials during construction activities in those areas. In San Francisco, there are areas composed of artificial fill which could contain hazardous materials such as asbestos, lead-based paint or polychlorinated biphenyls

(PCBs), the most common hazardous materials capable of causing adverse health impacts during demolition or renovation activities. In urban areas with existing or former commercial and industrial uses, the presence of soil and/or groundwater contamination is not unusual.

3. HAZARDOUS MATERIALS AND WASTE AT UCSF

a. Hazardous Materials Use

Hazardous materials can be classified into hazardous chemical materials (non-radioactive), radioactive materials and biohazardous materials. The discussion below describes existing hazardous materials use at UCSF for these three categories. Types of hazardous materials found in laboratories at UCSF include solvents, reagents and other chemicals, radioisotopes, infectious agents and test samples (e.g., specimens such as blood, tissue, soil or water). Facilities maintenance activities also require use of hazardous materials, such as fuels, cleaners, paints and thinners, pesticides and herbicides.

Hazardous Chemicals (Non-Radioactive)

Various hazardous chemicals that include flammable and corrosive materials, oxidizers and toxics are used at UCSF. The amount of a chemical used in research activities at any one time generally is small (less than a gallon). Researchers use chemicals as reagents to chemically modify biological molecules. Many physical research techniques also require chemicals, for example, chemical dyes are used for staining cells, and chemical developers and fixers are used in developing photographic film. Many of the methods used in the biomedical laboratories involve simple chemicals, like glucose, to serve as nutrients in solutions to support cell growth and reproduction. Since most molecules of biological interest are handled in water-based solutions, biological research typically uses water-soluble chemicals such as salts, acids and bases, and relatively smaller amounts of organic chemicals, such as solvents.

Radioactive Materials

Certain chemicals used in research contain radioactive atoms and are called radioisotopes. Most radioisotopes are used as tracers in biomedical research because they emit detectable radiation. Current methods for detecting radioactive molecules allow researchers to use relatively small amounts of radioactive materials in experiments, typically less than one millicurie.

Most work with radioactive materials at UCSF involves handling relatively small quantities of less than one millicurie. The amount of radioactivity actually present at a UCSF site at any time does not exceed the maximum permitted quantities and generally is considerably less.² Permitted quantities represent the maximum possible quantities of radioactivity that can be possessed at a UCSF site under UCSF's licenses and are not indicative of average use. Use estimates are best represented by the records of radioisotope purchase data.

Biohazardous Materials

Many different types of biological materials are used at UCSF. These substances include recombinant DNA molecules, infectious agents, parasites and other biological agents.

Most of the biological agents used in experiments and research work at UCSF are grown and consumed on site. Small quantities of biohazardous materials may be stored at UCSF sites when experiments are not in progress. Small culture stocks are stored in freezers. The freezers are the size of a typical household or commercial kitchen freezer and may contain small (a few milliliters) containers of cultures.

Under the US Department of Health and Human Services guidelines, four biosafety levels apply to biohazardous materials operations, depending on the potential of the hazard used. Biosafety Level 1 is for the least hazardous biological agents and Biosafety Level 4 is for the most hazardous biological agents. There are no Biosafety Level 4 laboratories at any UCSF sites and no UCSF staff requires the use of Biosafety Level 4 agents for research. The Department of Health and Human Services guidelines, which describe Biosafety Levels 1, 2, 3 and 4 in the Centers for Disease Control/National Institute of Health publication, *Biosafety in Microbiological and Biomedical Laboratories*, are included in Appendix 5. The UCSF Biosafety Program is intended to minimize community and worker exposure to hazards.

Research Animals

Certain laboratory work at UCSF requires the use of animals. Laboratory research involves a variety of large and small animals to produce antibodies³, to study noninfectious diseases such as cancer and heart disease, or to study the effects of infectious agents. The most commonly used animals are rodents.

b. Hazardous Waste Generation

Hazardous waste is generated as a result of hazardous materials use. Hazardous waste generated at UCSF can be grouped into three categories: hazardous chemical waste, radioactive waste and medical waste.

Hazardous Chemical Waste

Hazardous chemical waste stream at UCSF consists of any waste material or mixture of wastes which is toxic, corrosive, flammable, an irritant, a strong sensitizer, or which generates pressure through decomposition, heat or other means causing substantial injury, serious illness, or harm to humans, domestic livestock or wildlife.

EH&S staff provide services in waste handling and removal operations. EH&S is responsible for waste collection, record keeping, permit application, tax payment and regulatory agency reporting. A licensed contractor is hired by the EH&S Office and is responsible for laboratory packaging, manifesting, transporting and disposing of the waste.

Radioactive Waste

Low-level radioactive waste includes dry waste (i.e., syringes, paper, plastic, tubing, petri dishes), aqueous waste (i.e., generated from washing tissue cultures or pipettes), biological waste (i.e., animal carcasses, blood products, animal tissues), scintillation vials and other waste (i.e., Bactec vials from clinical laboratories, charcoal filters).

Low-level radioactive waste from the UCSF campus is collected and disposed of according to procedures described in UCSF's *Radiation Safety Manual*. Anyone working with radioisotopes at UCSF is required to have authorization from EH&S. To obtain the authorization, the applicant must pass an examination and must specify the type and amount of isotopes, in millicuries, to be used annually, the method of monitoring such use, the type of research and the specific use to be made of the isotopes. The applicant also must possess a certificate of competency from EH&S.

Low-level radioactive waste is characterized by the half-life of the isotopes of the waste. Currently, UCSF is licensed for decay of materials with a half-life of up to 90 days. Approximately 80 percent of the waste produced at UCSF has a half-life of less than 90 days. Low-level radioactive waste with a half-life of less than 90 days can be held at a UCSF site for decay of the isotopes (usually for ten times the half-life of the waste) so that the radioactive level of the waste is indistinguishable from normal campus waste and the waste can be disposed as general refuse. Low-level radioactive waste with a half-life of greater than 90 days must be disposed of in a licensed radioactive waste disposal facility.

"Closed-circle" reporting is required for the disposal of low-level radioactive waste, which is sent from a UCSF site to the licensed contractor for final disposal. To comply with reporting requirements, UCSF keeps detailed records to assure that all radioactive waste taken from UCSF sites is received and disposed of following the applicable regulations by the licensed contractor. The licensed contractor collects wastes from UCSF sites approximately once a month.

Medical Waste

Medical wastes include items such as cultures from medical laboratories, tissues or fluids from surgery, and sharps. Approximately 90 percent of these wastes are produced from hospital and clinical laboratory activities while the remaining 10 percent result from research activities.

EH&S administers the medical waste contract for UCSF. EH&S is responsible for initiating medical waste collection for UCSF facilities, record keeping, permit application and

regulatory agency reporting. The Medical Center's Environmental Services and Facilities Management Building Services are responsible for actually collecting medical waste at UCSF sites. A licensed contractor is hired who is responsible for manifesting, transporting and disposing of the medical waste from UCSF's medical centers.

Research-Generated Medical Waste

Research-generated biohazardous waste such as used cultures of influenza virus or recombinant DBA organisms is normally autoclaved (treated in a steam chamber to decontaminate the waste) before disposal as general refuse. Other biological waste, such as used gloves or needles is considered medical waste. Typically, the medical waste is bagged by the generator, collected by Facilities Management Building Services, placed inside a cardboard box labeled with the international "Biohazard" symbol, transported and stored in the designated medical waste storage bin at each UCSF site for subsequent treatment and disposition by a licensed waste hauler.

Hospital-Generated Medical Waste

All hospital and clinical laboratory identified medical wastes, with the exception of sharps, are red-bagged and placed in a cardboard box labeled with the international "biohazard" symbol. These medical wastes are collected by Medical Center Environmental Services from the utility room on every patient floor in UCSF's Medical Center facilities.

Sharps are deposited by UCSF employees in puncture-resistant containers and are collected by Medical Center Environmental Services on a regular basis. These sharps containers are then placed in a cardboard box labeled with the "biohazard" symbol, transported and stored in the designated medical waste storage bin at each UCSF site for treatment and disposition by a licensed waste hauler. Autoclave clinical laboratory medical waste with autoclave indicator tape is disposed of via the medical waste stream.

The medical waste hauler collects waste from the medical waste storage bins and lockers at each UCSF site twice a day, Monday to Friday, with a 14-foot enclosed waste truck. Prior to collection, the bin is checked for the presence of spills and/or visible leaks. The hauler then loads the containers into the truck, with appropriate manifest records, and transports the waste off-site for treatment and disposal.

Pathological Waste

At present, UCSF disposes of pathologic⁴ medical wastes, including animal parts, using the Parnassus Heights incinerator. These pathologic medical wastes are collected by Facilities Management personnel from UCSF sites. However, the LRDP proposes that the incinerator be closed and pathologic waste be collected by a licensed vendor for disposal.

c. Safety History and Regulatory Compliance Record

Safety History

EH&S responds to approximately 330 emergencies each year at the various UCSF sites. Most of the incidents relate to chemical odor complaints by UCSF employees and to chemical leaks or spills. Appendix 5 contains a list of recent emergency response incidents and a summary of recent worker's compensation claims at UCSF. The majority of claims in all employee classifications relate to lacerations and punctures (18 percent), contusions and bruises (19 percent), and sprains and strains (32 percent). The numbers of claims under each category vary each year.

Regulatory Compliance Record⁵

UCSF facilities are inspected by several regulatory agencies including the San Francisco Department of Public Health (DPH), San Francisco Department of Public Works (DPW), California Department of Health Services Radiologic Health Branch (RHB), California Division of Occupational Safety and Health (Cal-OSHA), State Fire Marshal (SFM) and Bay Area Air Quality Management District (BAAQMD).

The DPH inspects facilities to check compliance with several areas of regulatory requirements, including hazardous materials permits, monitoring of hazardous materials, underground storage tanks, hazardous waste generation and medical waste disposal. In the past five years, the DPH issued one notice of violation on improper handling of hazardous materials, one on hazardous waste generation, and one on underground storage tanks. The DPH also noted several incidents related to the inadvertent disposal of UCSF medical waste in the non-hazardous solid waste stream. However, according to the DPH, UCSF responded to most of the incidents at the Sanitary Fill Station and disposed of the medical waste appropriately.

The DPW inspects UCSF facilities to monitor their compliance with UCSF's Class I Wastewater Discharge Permit issued by the City and County of San Francisco. One violation was noted in 1994, but it was too minor to have a noticeable physical effect on the city's wastewater treatment plant.

The RHB inspects UCSF facilities to monitor radiologic health and safety procedures related to UCSF's broad scope Radioactive Material License and California's radiation control regulations. The RHB noted ten violations of these regulations by UCSF during their inspections from February 1990 through June 1992. The violations were related to issues such as insecure storage of radioactive materials, incomplete audits, insufficient employee training, incomplete manifesting of radioactive waste, improper movement of radioisotopes and incomplete record keeping regarding patient treatment. No violations of these regulations were noted during inspections by the RHB in 1993 and 1994.

Cal-OSHA conducts inspections in response to complaints from employees and referrals from Occupational Safety personnel at UCSF. Cal-OSHA inspected UCSF facilities 20 times

between 1990 and 1995. Twenty-nine violations were noted during these inspections. Five of the 29 violations were considered serious. The remaining violations were either regulatory (usually involving paper work) or general. Serious violations involved spilling asbestos-containing waste but not cleaning it up; an ineffective Injury and Illness Prevention Program resulting in repetitive strain injuries; and not updating the Injury and Illness Prevention Program which resulted in harmful exposure to xylene. UCSF abated these violations to meet Cal-OSHA requirements.

The SFM is responsible for enforcing fire safety regulations, including structural and non-structural requirements, at UCSF. The SFM identified numerous compliance issues during a series of inspections in 1991 and 1992. UCSF had begun a fire protection engineering study in January 1989 to review the adequacy of fire systems at Parnassus Heights. Subsequent discussions between UCSF staff and the SFM led to an accelerated compliance program and UCSF funding requests for capital improvement projects.

The BAAQMD cited two emission violations at UCSF within the past five years (1991 through 1995). Both occurred in 1993. The violations were settled by mutual agreement; no enforcement action was taken.

4. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant adverse impact on the environment if proposed LRDP development and uses would:

- create a substantial public health and safety hazard through release of emissions or undue risk of upset of hazardous materials related to human and environmental health and safety;
- involve the use, production or disposal of materials in a manner that poses a hazard to people or animal or plant populations in the area affected;
- interfere with emergency response plans or emergency evacuation plans; or⁶
- fail to comply with applicable laws and regulations.⁷

5. IMPACT METHODOLOGY

Significant adverse impacts would be identified based upon an analysis of the quantities of hazardous materials used and hazardous waste generated in connection with the 1996 LRDP and an analysis of the effective compliance of UCSF with the applicable laws and regulations. The objective of the analysis would be to determine any increase in risk to public health and safety caused by increased use of hazardous materials and generation of hazardous waste resulting from the LRDP activities.

This impact analysis also would focus on potential health and safety effects resulting from construction and demolition activities under the LRDP, particularly effects related to soil,

groundwater and building contamination. The evaluation would consider current conditions at the existing and potential UCSF sites based upon review of existing environmental assessments, applicable regulations and guidelines, and the effectiveness of available mitigation measures. For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

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1. University of California San Francisco, Office of Environmental Health and Safety, *UCSF Radiation Safety Manual*, June 1988.
 2. University of California San Francisco, *Revised Laurel Heights Plan Final Environmental Impact Report*, SCH No. 95033072, September 6, 1995, V. II.
 3. Antibodies are relatively large protein molecules synthesized by some organisms as an immune response when exposed to certain foreign substances.
 4. Related to pathology, which is a study of the essential nature of diseases, and the structural and functional changes produced by them.
 5. University of California San Francisco, *Revised Laurel Heights Plan Final Environmental Impact Report*, SCH No. 95033072, September 6, 1995, V. II.
 6. University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*, SCH NO. 93013064, January 5, 1994, p. 158
 7. University of California, *Procedural Handbook and Model Approach for Implementing the California Environmental Quality Act*, 1991.

G. GEOLOGY AND SEISMICITY

1. REGULATORY BACKGROUND

a. University of California

The University Policy on Seismic Safety, revised in January 1995, requires UCSF to identify and correct potential earthquake hazards in existing UCSF structures and to design new structures to avoid seismic hazards. Independent seismic engineers have performed, and continue to perform, seismic evaluations of existing UCSF buildings. Similar identification and correction is required for existing buildings to be acquired by UCSF. For new construction, the following requirements are stated in the University Policy on Seismic Safety:

The design and construction of new buildings and other facilities on University premises shall, as a minimum, comply with the current seismic provisions of California Code of Regulations (CCR) Title 24, California Building Standards Code or local seismic requirements, whichever requirements are more stringent. In addition, provisions shall be made for adequate anchorage for seismic resistance of nonstructural building elements, including but not limited to glass, fixtures, furnishings and other contents, equipment, material storage facilities, and utilities (gas, high-temperature water, steam, fire-protection water, etc.) with respect to potential hazards to persons in the event of seismic disturbances.

New University buildings shall not be constructed on the trace of a known active geological fault.

For buildings to be rehabilitated, the following requirements are stated in the University Policy on Seismic Safety.

When evaluation by the consulting structural engineer of existing buildings or other facilities discloses conditions which do not afford an acceptable level of safety, proposed correction work shall be incorporated in the program developed by the responsible official for abatement of seismic hazards and integrated in the University's proposed Capital Improvement Program. Seismic rehabilitation projects shall provide, as a minimum, an acceptable level of earthquake safety based on the sole consideration of the protection of life and prevention of personal injury, insofar as predictable, at a level of safety equivalent to that which would be established by compliance with the current seismic provisions of CCR Title 24, California Building Standards Code or local seismic requirements, whichever requirements are more stringent, disregarding insofar as possible potential building damage not jeopardizing life, which would be expected from one earthquake of the intensity of at least IX on the Modified Mercalli Intensity Scale [see Glossary in Appendix 6 of this EIR].¹

b. State of California

The state regulations regarding geo-seismic hazards (other than surface faulting) are contained in CCR Title 24, Part 2, California Building Code (CBC). The CBC applies to all public buildings in the state. It is based on the current Uniform Building Code used in about half the United States, but contains additions, amendments and deletions that are specific to building conditions and structural requirements in the State of California, particularly those related to seismic safety, as stipulated by the Structural Engineers Association of California and codified by the state legislature. The policies of individual state institutions, such as the University of California, are permitted to be more stringent than the state code, but cannot be less stringent. The University Policy on Seismic Safety requires use of the most stringent seismic requirements (state or relevant local jurisdiction).

The state legislation regarding construction near known active fault traces is the Alquist-Priolo Earthquake Fault Zoning Act (see Glossary in Appendix 6).² The purpose of the Act is to reduce the hazards posed by surface rupture of a fault. Maps prepared by the California Division of Mines and Geology delineate Earthquake Fault Zones of appropriate width to include known active traces of all the major faults in the Bay Area. Because of the requirements in the University Policy on Seismic Safety, the proposed Major New Sites have been located away from known active fault traces. Therefore, UCSF development at existing sites or at a Major New Site under the 1996 LRDP would not occur in any Alquist-Priolo Earthquake Fault Zones and would be in compliance with the Act.

c. Local Regulation

UCSF development under the 1996 LRDP could occur in the City and County of San Francisco, the City of Brisbane or the City of Alameda. Each local jurisdiction has codes that address geo-seismic hazards. The City of Brisbane uses the California Building Code³ (CCR Title 24, Part 2) to regulate seismic safety in its jurisdiction, in conjunction with Policy 149, Structural Improvements, of the city's *1994 General Plan*.⁴ The City and County of San Francisco and the City of Alameda use modified versions of the California Building Code to regulate seismic safety in their jurisdictions, in conjunction with policies in the community health and safety elements of their respective general plans.⁵ The building codes contain provisions addressing excavation, grading, slope stability, erosion control, foundation investigations, seismically-resistant design and construction, and structural integrity, which are intended to reduce hazards to life safety and to minimize property damage and economic disruption resulting from future earthquakes. Appendix 6 of this EIR contains a brief summary of the relevant building codes and general plan policies for each of these jurisdictions.

By complying with the University Policy on Seismic Safety, which requires UCSF to use the most stringent seismic requirements that apply to the jurisdiction in which its new or renovated structures are located, UCSF would be in compliance with the objectives and policies of each of the cities or counties.

2. REGIONAL SETTING

a. Design Implications

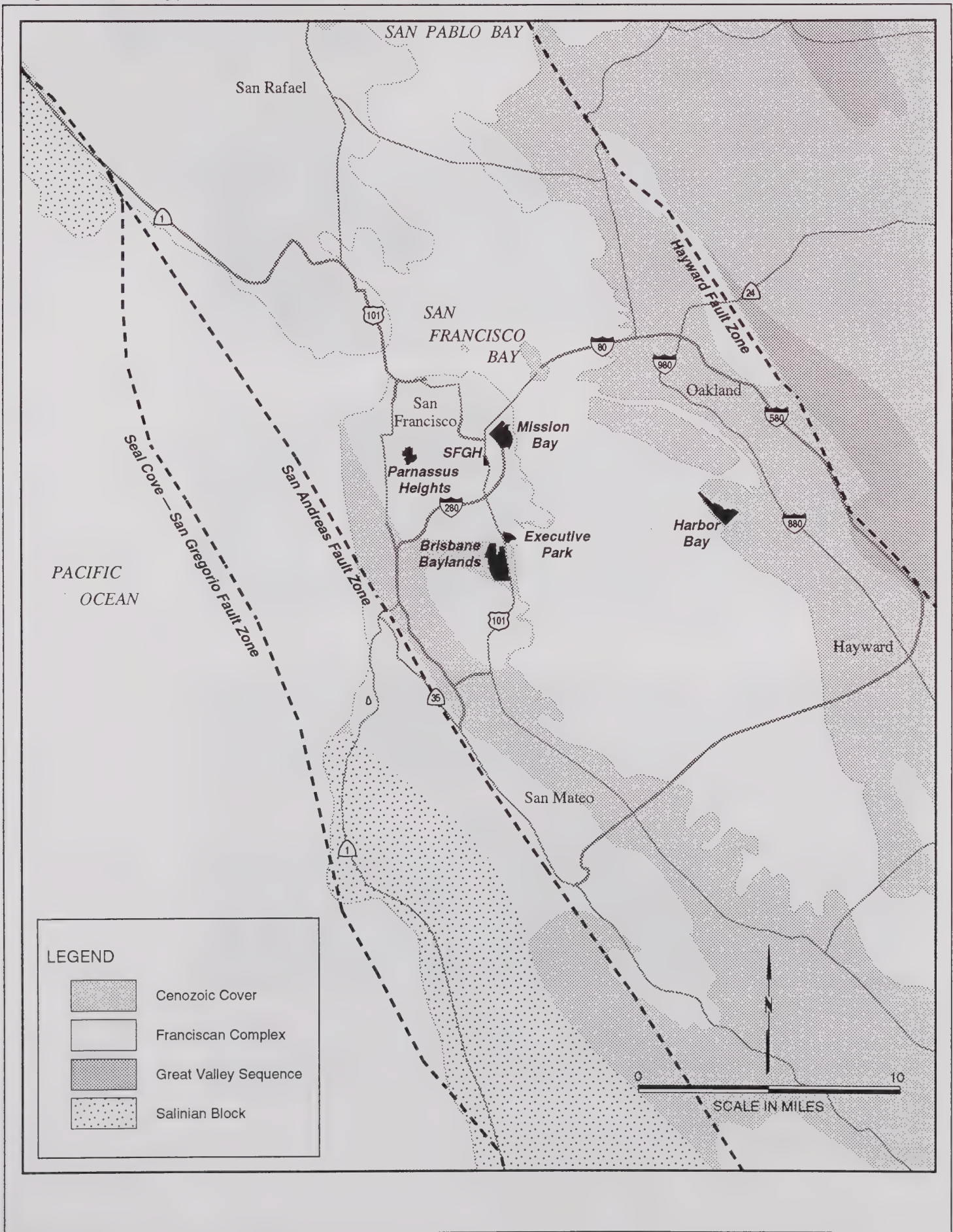
The location, composition and engineering characteristics of geologic units (rock and sediment) have design implications for buildings constructed in the San Francisco Bay Area. State and local laws require consideration of dynamic and static force parameters in the design of new and retrofitted buildings to ensure the safety of the occupants. These parameters are provided by the capabilities of the active fault zones as generators of large earthquakes, and of the rocks and sediments as cut slopes and foundation supports. The ability of a structure to withstand seismic forces depends, to a large extent, on the integrity of the geologic material on which the structure is supported.

b. Regional Geology

The geology of the west side of the San Francisco Bay Area is dominated by the North Coast Segment of the San Andreas Fault Zone (see Figure 3-2, Regional Geology).⁶ The main trace of this fault divides ancient Franciscan Assemblage sandstones, cherts and shales (northeast of the fault trace) from younger claystones, siltstones and sandstones (southwest of the fault trace). Franciscan bedrock underlies all proposed LRDP development on the west side of the Bay. The Franciscan rocks generally are stable under static and seismic conditions. They are not particularly permeable, except where fractured. Generally, they are relatively difficult to work in excavations, and most retain their natural stability in a variety of post-construction conditions.

The geology of the east side of the bay is dominated by the Northern East Bay Segment of the Hayward Fault Zone.⁷ This fault zone divides ancient marine sandstones, cherts and shales (northeast of the fault) from very young alluvial, dune and intertidal deposits of sand, silt and clay (southwest of the fault). The marine rocks are deeply buried below the young sediments at the proposed Major New Site at Harbor Bay and tend to retain their natural stability in most post-construction conditions.

Bedrock on both sides of the bay is buried by anywhere from a few feet to several hundred feet of recent sediments. These sediments consist of such deposits as estuarine clay and silt, dune and beach sand, and river sand or gravel. Over time these sediments have been eroded and redeposited to form much of the present ground surface. Static and seismic stability of the sediments vary considerably, as does their permeability (see Site-Specific Setting subsections for each of the potential Major New Sites). These sediments are relatively easy to work in excavations, but usually need some modification to perform adequately in free-standing slopes or as foundation support.⁸



Source: California Division of Mines and Geology, 1994.

c. Regional Seismicity

The San Francisco Bay Area is one of the most active seismic regions in the United States. Numerous low- and moderate-intensity earthquakes occur within this region every year. About a dozen large-intensity earthquakes, causing injury, deaths and property damage, have occurred during recorded history. The major fault zones of the San Francisco Bay Area are the sources of these earthquakes and are likely to be the sources of future earthquakes (see Figure 3G-1).⁹ The active fault zones that cause these earthquakes affect development throughout the Bay Area. Even though no known active fault traces pass through any existing or proposed LRDP sites, UCSF facilities would need to be designed to withstand the anticipated effects of seismic vibration.¹⁰

The San Andreas, Hayward and Calaveras fault zones (6 miles southwest, 12 miles northeast and 24 miles southeast of San Francisco, respectively) are historically active (during the last 200 years). The northern section of the San Andreas Fault is capable of generating a maximum credible earthquake (MCE) of Richter magnitude M8.3 (see Glossary in Appendix 6); the Hayward and Calaveras faults are capable of generating MCEs of M7.5.¹¹ Earthquakes of these magnitudes could create ground accelerations in bedrock and in unconsolidated deposits severe enough to cause major damage to structures, foundations and underground utility lines.¹²

There is no definitive evidence of historical movement (during the last 200 years) or Holocene movement (during the last 11,000 years) on the northern segment of the San Gregorio Fault Zone (10 miles west of San Francisco). Holocene faults do occur as traces within the San Andreas Fault Zone and are considered potentially active. The City College, Hillside, San Bruno and Serra faults (6, 8, 9 and 10 miles southwest of San Francisco, respectively), and the San Gregorio Fault Zone, have been classified as Quaternary (the last two million years) or older because they do not display evidence of recent movement.¹³ There is no definitive evidence of historical, Holocene or Late Quaternary movement (during the last 700,000 years) on other faults within 10 miles of the City of Alameda.¹⁴

3. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant adverse impact on the environment if the proposed LRDP development and uses would:

- result in exposing people or structures to increased risk related to major geologic hazards, such as substantial surface rupture, groundshaking, liquefaction, slope failure or landslides;
- expose people to structural hazards in an existing building rated Poor, or Very Poor, under the University's seismic performance rating system, or substantial nonstructural hazards;

- locate structures in an Alquist-Priolo Earthquake Fault Zone; or
- locate structures on soils that are likely to collapse or subside, or that exhibit expansive characteristics that could substantially damage foundations or structures.

4. IMPACT METHODOLOGY

The examination of geology and seismicity issues in this section of the EIR is based on information obtained from:

- site observations;
- review of the Draft 1996 LRDP;
- review of published environmental documentation and geotechnical studies of the existing and potential UCSF sites, including documents published by state and federal agencies dealing with geo-seismic conditions in the San Francisco Bay Area;
- review of applicable elements in the General Plans of the cities and counties in which existing and potential UCSF sites are located;
- interviews and telephone conversations with persons involved with, or concerned about, geology and seismicity issues related to the 1996 LRDP.

Information from site observations and the 1996 LRDP was compared to a model of geo-seismic conditions and hazards in the areas where UCSF development could occur under the LRDP, based on the published literature and applicable General Plan elements. For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

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 2. *Alquist-Priolo Earthquake Fault Zoning Act*, California Public Resources Code, Division 2. "Geology, Mines and Mining," Chapter 7.5 "Earthquake Fault Zones," Sections 2621-2630; signed into law December 22, 1972, amended 1993.

3. California Code of Regulations, Title 24, Part 2, *California Building Code*, July 1, 1989: Ch. 23, Ch. 29, Ch. 70.
4. City of Brisbane, *1994 General Plan*, June 21, 1994, pp. 146-152.
5. a) City and County of San Francisco Municipal Code, *Building Code*, November 6, 1989, pp. 159-161.

b) City and County of San Francisco, *Community Safety Element of the San Francisco Master Plan*, September 12, 1974, p. 3.

c) City of Alameda, *Health and Safety Element*, Section 8 of the General Plan, February 5, 1991, pp. 120-124.
6. J.C. Schlocker, *Geology of the San Francisco North Quadrangle, California*, United States Geological Survey, Professional Paper 782, Washington, D.C., 1974, pp. 3-5 and Plate 1.
7. D.H. Radbruch, *Areal and Engineering Geology of the Oakland West Quadrangle, California*, United States Geological Survey, 1957, Miscellaneous Geologic Investigations Map I-239.
8. a) J.C. Schlocker, *Geology of the San Francisco North Quadrangle, California*, United States Geological Survey, Professional Paper 782, Washington, D.C., 1974, pp. 93-99 and Plates 1 & 2.

b) D.H. Radbruch, *Areal and Engineering Geology of the Oakland West Quadrangle, California*, United States Geological Survey, 1957, Miscellaneous Geologic Investigations Map I-239.
9. a) C.W. Jennings, *Fault Activity Map of California and Adjacent Areas*, California Division of Mines and Geology, 1994, Geologic Data Map No. 6.

b) S.K. Guter, *Seismicity of California, 1808 - 1987*, National Earthquake Information Center, United States Geological Survey, Open-File Report 88-286, 1988.
10. Seismology Committee, Structural Engineers Association of California, *Recommended Lateral Force Requirements and Tentative Commentary*, San Francisco, California, 5th edition, revised June 30, 1988, p. 1.
11. L. Mualchin, and A.L. Jones, *Peak Acceleration from Maximum Credible Earthquakes in California (Rock and Stiff-Soil Sites)*, California Division of Mines and Geology, Open-File Report 92-1, 1992, map.
12. a) J.F. Davis, J.H. Bennett, G.A. Borchardt, J.E. Kahle, S.J. Rice, and M.A. Silva, *Earthquake Planning Scenario for a Magnitude 8.3 Earthquake on the San Andreas Fault in the San Francisco Bay Area*, California Division of Mines and Geology, Special Publication 61, 1982, maps & accompanying text on adjacent pages.

b) L. Mualchin, and A.L. Jones, *Peak Acceleration from Maximum Credible Earthquakes in California (Rock and Stiff-Soil Sites)*, California Division of Mines and Geology, Open-File Report 92-1, 1992, map.

c) K.V. Steinbrugge, J.H. Bennett, H.J. Lagorio, J.F. Davis, G.A. Borchardt, and T.R.

Toppozada, *Earthquake Planning Scenario for a Magnitude 7.5 Earthquake on the Hayward Fault in the San Francisco Bay Area*, California Division of Mines and Geology, Special Publication 78, 1987, maps & accompanying text on adjacent pages.

13.
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14.
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 - b) C.W. Jennings, *Fault Activity Map of California and Adjacent Areas*, California Division of Mines and Geology, 1994, Geologic Data Map No. 6.
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 - d) D.H. Radbruch, *Areal and Engineering Geology of the Oakland West Quadrangle, California*, United States Geological Survey, 1957, Miscellaneous Geologic Investigations Map I-239.
 - e) J.C. Schlocker, *Geology of the San Francisco North Quadrangle, California*, United States Geological Survey, Professional Paper 782, Washington, D.C., 1974, Plate 1.

H. HYDROLOGY AND WATER QUALITY

1. REGULATORY BACKGROUND

a. Flood Control - Hydrology

The Federal Emergency Management Agency (FEMA) is responsible for management of floodplain areas, which are defined as the lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year (the 100-year floodplain). FEMA requires a local government covered by federal flood insurance to pass and enforce a floodplain management ordinance that specifies restrictions on any construction within the 100-year floodplain.

b. Water Quality

Federal and state water quality regulations are implemented on a regional basis and apply to all development projects because development can adversely affect surface or groundwater quality with wastewater and storm water discharges. Section 303 of the federal Clean Water Act and the state's Porter-Cologne Water Quality Control Act establish water quality objectives for all waters in the state. These objectives are implemented in the San Francisco Bay Area through the *Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)* and National Pollutant Discharge Elimination System (NPDES) permitting.

San Francisco Bay Water Quality Control Plan

The 1986 *Basin Plan* establishes the water quality objectives for San Francisco Bay. The *Basin Plan* was amended in 1992 to include additional water quality objectives for other pollutants not addressed in the 1986 *Basin Plan*, but covered by other statewide plans, and was updated in 1995. The Regional Water Quality Control Board, San Francisco Bay Region (Regional Board), prepared the plan in compliance with the federal Clean Water Act and the state Porter-Cologne Water Quality Control Act. Besides water quality objectives, the *Basin Plan* establishes implementation programs to protect beneficial uses of water in the San Francisco Bay Basin. The *Basin Plan* does not permit wastewater discharges to degrade water quality in San Francisco Bay to the point where beneficial uses would be adversely affected. The *Basin Plan* identifies beneficial uses for the central portion of the Bay, related to industrial, navigation, recreation and habitat uses.¹

Waste Discharge Requirements

Through the NPDES permit Waste Discharge Requirements, the Regional Board establishes quality of effluent that can be discharged from a wastewater treatment plant by setting limits on the levels of pollutants in water discharges. The limits are designed to meet the water quality objectives established in the *Basin Plan*.

Storm Water Discharge Permitting Regulations

The federal Clean Water Act prohibits the discharge of pollutants to navigable waters from a point source unless authorized by a NPDES permit. Municipalities, certain industrial activities and certain construction activities require permits from the Regional Board for pollutants in storm water discharges.

California General Construction Activity Storm Water Permit

Since 1992, the state has required general storm water discharge permits for storm water discharges associated with construction activities involving the disturbance of five acres or more. Thus, development of a Major New Site would require a General Construction Activity Storm Water Permit from the Regional Board.

Landowners are responsible for obtaining and complying with the permits, but they may delegate specific duties to developers and contractors by mutual consent. Permit applicants are required to prepare, implement and retain at the construction site, a Storm Water Pollution Prevention Plan. This plan describes the site, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of post-construction sediment, erosion control measures, maintenance responsibilities and non-storm water management controls. Such controls are termed Best Management Practices. Construction sites must be inspected before and after storms to identify storm water discharge from construction activity and to identify and implement controls where necessary.

c. Local Policies and Plans

San Francisco

The *San Francisco Master Plan* has established policies to protect and maintain the surrounding bay, ocean and shorelines,² including a plan to improve sewage treatment and halt pollution of the bay and ocean. The City and County of San Francisco also developed the *San Francisco Master Plan for Waste Water Management* which contains plans to upgrade the collection, treatment and disposal of San Francisco's sewage.³

Brisbane

The *City of Brisbane General Plan* contains policies relevant to the protection of water resource features on the Brisbane Baylands.⁴ These policies include the conservation of water resources, water quality, and riparian and other water-related vegetation; the recognition of the importance of Brisbane Lagoon as a valuable community resource, drainage basin and wildlife habitat; and the reduction of sediment and other pollutants entering waterways.

Alameda

The *City of Alameda General Plan* contains policies relevant to the protection of water resource features on the Harbor Bay site.⁵ These policies address preservation of natural resources, erosion control and water quality control.

2. REGIONAL SETTING

All the potential Major New Sites are located near the shore of San Francisco Bay. The bay is the largest estuary on the west coast of North America and provides natural habitat resources to fish and wildlife, as well as economic and recreational opportunities for people.

The City and County of San Francisco treats its sanitary wastewater and stormwater at three treatment facilities: The Southeast Water Pollution Control Plant, the Oceanside Water Pollution Control Plant and the North Point Water Pollution Control Plant. These facilities are described in detail in Section K, Utilities and Infrastructure of this chapter.

The Southeast Water Pollution Control Plant receives sanitary wastewater and stormwater runoff from the east side of the city. During rainy weather, flows of stormwater runoff sometimes exceed the system treatment capacity. When this occurs, the excess flow, comprised of untreated sewage and stormwater runoff, overflows through a number of outfalls along the city's shoreline into San Francisco Bay and the Pacific Ocean. In 1975, the city adopted a *Master Plan for Waste Water Management* to upgrade the combined sewer system and treatment plants and to reduce the number and frequency of untreated wastewater overflows. The *Master Plan for Waste Water Management* is being implemented in stages. The city has almost completed construction of all the facilities necessary to comply with the Regional Water Quality Control Board's regulatory limitation of no more than ten untreated discharges per year on the eastern half of the city.

With completion of these facilities, the city will have met the schedules of all but one of the Regional Board's Cease and Desist Orders related to the discharge of untreated effluent. The one unmet schedule required the city to select an alternative to the discharge of effluent from the Southeast Water Pollution Control Plant in Islais Creek by November 1, 1994. The city applied for an extension of this deadline, and the Regional Board is considering granting it. The city is exploring two alternatives for further analysis, wastewater reclamation and wastewater export, and expects that it may take three to four years before the city is prepared to conduct more specific analysis of these alternatives. The city projects that an alternative could be selected by 2000, but it is unknown when the alternative would be implemented.⁶

3. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant adverse impact on hydrology and water quality if the proposed LRDP development and uses would:

- create substantial flood hazards by increasing the quantity and/or rate of runoff;
- be located within a 100-year flood plain or in flood-prone areas;

- substantially deplete surface or groundwater resources;
- substantially degrade surface or groundwater quality;
- substantially increase erosion or sedimentation; or
- fail to comply with applicable water quality laws and regulations.

4. IMPACT METHODOLOGY

The impact analysis in the following chapters analyzes the manner in which LRDP activities could affect hydrology and water quality, based on existing conditions. It then determines whether or not an environmental impact would occur, and if so, assesses its significance based on the criteria discussed above. For example, an impact could be an additional contribution of storm water discharges by new construction. If the amount were to substantially degrade surface water quality, for example, by exceeding pollutant discharge limits, then that impact would meet one of the significance criteria listed above and would be determined to be significant. For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

5. BRISBANE AND ALAMEDA

Jurisdictional issues related to specific sites in Brisbane and Alameda are addressed in Chapter 12, Section H.

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1. Regional Water Quality Control Board, San Francisco Bay Region, *1995 Basin Plan Update*, March 15, 1995, p. III-7.
 2. City and County of San Francisco, Department of City Planning, *San Francisco Master Plan*, n.d., p. I.6.5.
 3. City and County of San Francisco, Department of Public Works, *San Francisco Master Plan for Waste Water Management, Preliminary Comprehensive Report*, 1975.
 4. City of Brisbane, *1994 General Plan*, June 21, 1994, pp.150-154.
 5. City of Alameda, *City of Alameda General Plan*, February 1991, p. 83.
 6. Frank Filice, Principal Analyst, Planning and Permitting, Department of Public Works, City and County of San Francisco, telephone conversation with EIP Associates, November 20, 1995.

I. VEGETATION AND WILDLIFE

1. REGULATORY BACKGROUND

Several federal and state statutes guide the protection of biological resources. The following discussion provides a summary of those laws that are relevant to biological resources potentially affected by the LRDP.

a. Federal Regulations

Clean Water Act – Section 404 and Section 401

Section 404 of the Clean Water Act (1972) prohibits filling jurisdictional “waters of the United States” without a permit issued by the Army Corps of Engineers (Corps), as stipulated by a Memorandum of Understanding between the Corps and the U.S. Environmental Protection Agency. “Waters of the United States” includes oceans, bays, lakes, ponds, rivers, their tributaries, adjacent wetlands and isolated wetlands used for interstate commerce, including those subject to use by migratory birds. The upper limit of the Corps’ jurisdiction in non-tidal creeks and drainages is the ordinary high water mark (OHWM). The upper limit of jurisdiction in tidal waterways is the high tide line or mean high water (MHW). A field delineation and a determination of jurisdiction by the Corps is required to determine the limits of jurisdiction in wetlands. Fill of “waters of the United States” may be permitted by the issuance of an Individual Permit or by complying with existing general permits (“Nationwide Permits”). LRDP activities that would place fill or structures in jurisdictional waters would require compliance with Clean Water Act regulatory requirements. Jurisdictional waters exist at the Brisbane Baylands/Executive Park and Harbor Bay sites. Section 404 of the Clean Water Act requires that a Section 401 water quality certification or waiver must be obtained from the Regional Water Quality Control Board (RWQCB) prior to issuance of a 404 Permit from the Corps.

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act, 16 USC 703-711, makes it “unlawful to take” any migratory bird listed in 50 Code of Federal Regulations (CFR) part 10, including, the “nests, eggs, or products” of the listed birds. This regulation is pertinent to any proposed sites where development could affect nesting migratory birds, such as the Harbor Bay site.

Endangered Species Act (ESA)

The federal Endangered Species Act (ESA) is administered by the US Fish and Wildlife Service (USFWS). Section 3 of the Act defines an “endangered species” as any species, including subspecies, “in danger of extinction throughout all or a significant portion of its range.” This section defines “threatened species” as any species “likely to become an

endangered species within the foreseeable future throughout all or a significant portion of its range." "Federally-listed" or "listed" indicates that a species has been designated as endangered or threatened through publication of a final rule in the *Federal Register*. "Designated endangered" and "designated threatened species," listed under Section 4 of the Act, receive the full protection of the ESA.¹ "Proposed endangered" and "proposed threatened species" are those for which a proposed regulation, but not a final rule, has been published in the *Federal Register*. "Candidate" species are those being considered by USFWS for a proposed regulation. "Species of concern" (formerly Category 2 candidates), are those for which USFWS needs information to determine if they should be candidate or proposed species. Proposed species are granted limited protection under the ESA; candidate species are afforded no protection.²

The ESA would apply to proposed UCSF sites where development could affect a federally-listed or proposed species. The ESA provides two mechanisms for dealing with projects that could affect endangered species. Section 7 of the ESA states that federal agencies whose actions (including permitting) could jeopardize a threatened or endangered species must conduct formal consultation with USFWS to obtain a Biological Opinion. If that opinion states that the project could jeopardize the continued existence of the threatened or endangered species, the federal agency cannot issue a permit or otherwise authorize the project. This would apply to any projects that require a Section 404 permit and could affect a listed species. If the proposed project does not require a federal permit other than one required by the ESA, the other mechanism is Section 10 of the ESA, which authorizes the USFWS to issue an "incidental take" permit. Section 10 incidental take permits are extremely difficult to obtain, and could require implementation of a regional, multi-agency Habitat Conservation Plan addressing mitigation throughout the range of the affected endangered or protected species. Under the ESA, "taking" has been interpreted to include habitat modification of endangered and threatened species.

b. State of California Regulations

California Endangered Species Act (CESA)

The California Endangered Species Act (CESA) declares that deserving species will be given protection by the state because they are of ecological, educational, historical, recreational, aesthetic, economic and scientific value to the people of the state. CESA establishes the state policy to conserve, protect, restore and enhance endangered species and their habitats. Under state law, species may be formally designated "rare," "threatened," or "endangered" by official listing by the California Fish and Game Commission.³

Species listed under the CESA (Fish and Game Code Section 2050 *et seq.*) cannot be "taken" without adequate mitigation and compensation. At present, "take" means to hunt, pursue, catch, capture or kill a listed species, or to attempt to do so. Based on the most recent findings of the California Attorney General's Office, "take" does not prohibit indirect harm by way of habitat modification. Typically, the California Department of Fish and Game (CDFG) implements endangered species protection by entering into management agreements ("Section 2081 Management Agreements") with project applicants.

None of the sensitive species likely to occur at UCSF's existing and proposed sites are listed under CESA. It is possible, however, that one or more of those species could be listed during the LRDP planning period.

California Environmental Quality Act – Treatment of Sensitive Plant and Animal Species

Both the federal and state Endangered Species Acts protect only those species formally listed (or proposed in the case of the federal law) as threatened or endangered (or rare in the case of the state list). Section 15380 of the California Environmental Quality Act (CEQA), however, independently defines “endangered” species of plants or animals as those whose survival and reproduction in the wild are in immediate jeopardy. It also defines “rare” species as those with such a low population that they could become endangered if their environment worsens. Appendix G of the *CEQA Guidelines* states that a project will normally have a significant effect on the environment if it will “substantially affect a rare or endangered species of animal or plant or the habitat of the species.” Therefore, under CEQA, the significance of impacts to a species may be based on actual rarity and threat of extinction even in the absence of federal or state listing or designation. This is relevant to any LRDP activities such as the Major New Site at Harbor Bay that could significantly affect a species defined as rare or endangered under CEQA.

Fish and Game Code – Sections 3503, 3503.5, 3513

Fish and Game Code Section 3503 states that it is “unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto”. Fish and Game Code Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the Federal Migratory Bird Treaty Act of 1918. These regulations could require that LRDP activities (in particular the Major New Site at Harbor Bay) be curtailed or eliminated during critical phases of the nesting cycle (March 1 - August 15 annually), unless it can be demonstrated that nests will not be disturbed, and CDFG approves the activity. A disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a “taking” under the Fish and Game Code. Such taking would also violate federal law protecting migratory birds (Migratory Bird Treaty Act of 1918).

2. REGIONAL SETTING

In the San Francisco Bay region, the presence and activities of humans has had a significant, mostly negative, impact on California native plants and animals. Large areas of natural vegetation have been destroyed or altered as a result of land clearing for agriculture, roads and urban uses. This has had a corresponding effect on animal species.

3. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant adverse impact on vegetation and wildlife resources if the proposed LRDP development and uses would:

- result in violation of state or federal endangered species regulations, including “take” of a population of a state- or federally-listed threatened or endangered species;
- result in substantial reduction in numbers of, restriction in range for, or loss of habitat for a population of special status species, including species that are fully protected under the State or Federal Endangered Species Act, identified as a candidate Category 1 or 2 under such Acts, proposed for federal listing as threatened or endangered, or considered “rare” under *CEQA Guidelines* Section 15380 or by the California Department of Fish and Game;
- create substantial interference with the movement of any resident or migratory fish or wildlife species;
- substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; or threaten to eliminate a plant or animal community (CEQA Section 15065);
- result in substantial disturbance of wetlands, marshes, riparian woodlands and other significant wildlife habitat; or
- result in violation of local tree protection ordinances including damage or removal of heritage, landmark or native oak trees of the specified diameter.

4. IMPACT METHODOLOGY

The analysis of Vegetation and Wildlife impacts is based upon a review of UCSF’s existing and potential sites and the potential effects of LRDP activities on sensitive biological resources, including sensitive habitats such as wetlands, and sensitive species of plants and animals and their habitats.

Existing information, including other EIRs, previous field studies and previous biotic reports relating to UCSF’s existing and potential sites were reviewed. A current report on known and potential occurrences of sensitive plant and animal species and sensitive habitats was obtained from the CDFG’s California Natural Diversity Data Base (CNDDB). The CNDDB and the 5th Edition of the California Native Plant Society’s *Inventory of Rare and Endangered Vascular Plants of California* (1994), and USFWS Region 1 news releases were reviewed for changes in status, new occurrence records and additions to the list of species for which surveys should be conducted.

Potential Major New Sites were surveyed on foot to assess the potential for occurrence of sensitive species. Field surveys identified all vascular plant species and wildlife species

observed at the Major New Sites. Sensitive habitats, including wetlands, were identified and mapped. For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant-level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

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1. US Department of the Interior, US Fish and Wildlife Service, Section 4, "Determination of Endangered Species and Threatened Species," *Endangered Species Act of 1973 as Amended Through The 100th Congress*, 1988.
 2. Skinner, M.W., and Bruce M. Pavlik *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California*, 1994.
 3. Gould Publication, Inc. *Fish and Game Code of California*, Chapter 1.5, Endangered Species, Sections 2050 through 2098, 1995.

J. PUBLIC SERVICES

1. REGULATORY BACKGROUND

a. Assembly Bill 2071–The Allen Bill

The Allen Bill (AB 2071) allows people to enroll their children in the school district serving the area in which they are employed, regardless of their place of residence. The Allen Bill also allows school districts to limit such enrollments to avoid enrollments that exceed the school district's capacity.

b. Assembly Bill 939–The California Integrated Waste Management Act

Solid waste disposal is governed by California State Assembly Bill 939 (AB 939). AB 939 is designed to increase landfill life and conserve other resources through increased reliance on recycling. AB 939 requires counties to prepare Solid Waste Master Plans to implement the Bill's goals, particularly the landfill diversion goals of 25 percent by 1995 and 50 percent by year 2000. Additionally, AB 939 requires cities and counties to prepare General Plan Source Reduction and Recycling Elements to achieve landfill diversion goals, and to stimulate local recycling in manufacturing and the purchase of recycled products.

2. REGIONAL SETTING

This section identifies existing conditions for police protection, fire services, parks and recreation space, schools, and solid waste collection and disposal in the City of San Francisco because the information applies to more than one site where LRDP activities would occur. The existing conditions for public services in the City of Alameda and the City of Brisbane are evaluated on a site-specific basis because the information relates only to the potential Major New Site in those jurisdictions.

a. Police Protection

University of California San Francisco Police Department (UCPD) ¹

The UCPD is exclusively responsible for primary police service to all UCSF-controlled properties and facilities. The UCPD is responsible for a population of approximately 23,165 employees, students, patients and visitors at all UCSF-controlled sites.

The UCPD is currently based at the UCSF Mission Center Building at 1855 Folsom Street. The UCPD has a total staff of 64 persons, 25 of whom are sworn police personnel.² Therefore, the existing service ratio of police personnel to current UCSF population is 1.1 sworn police officers per 1,000 persons. Distances between UCSF sites create servicing inefficiencies for the UCPD.

Both the UCPD's Mission Statement and the LRDP have provisions for ensuring a safe environment for all UCSF facilities. Therefore, UCPD service delivery capabilities would be assessed in order to meet the departmental and LRDP goals as demand for service increases under the LRDP.

The UCPD also has secondary or mutual aid responsibilities in the one-mile radius zones surrounding each of the UCSF sites. A Memorandum of Understanding between the UCPD and the San Francisco Police Department (SFPD) establishes that the UCPD has exclusive jurisdiction over police services on UCSF properties, while the SFPD has exclusive jurisdiction over police services outside of UCSF properties.³ The SFPD, which operates from nine District Stations throughout the city, is the primary provider of police services in San Francisco.⁴

b. Fire Protection

The San Francisco Fire Department (SFPD) provides fire protection to the entire city, including all UCSF facilities within the city. In 1994, the SFPD consisted of 1,604 authorized personnel. The SFPD responded to approximately 61,000 service calls in 1994.⁵

c. Schools

The San Francisco Unified School District (SFUSD) provides public primary and secondary education in San Francisco. The SFUSD operates 72 elementary schools (grades K-5), 18 middle schools (grades 6-8), and 20 high schools (grades 9-12). Total district enrollment during the 1993-1994 school year was 63,964 students.⁶ This level is projected to remain relatively constant through the 2002-2003 school year.⁷ During the 1993-1994 school year, the District operated at 96 percent of available capacity, with space available for approximately 2,735 additional students in grades K-12.

d. Solid Waste⁸

Most solid waste generated in San Francisco, including that generated at UCSF sites, is collected by two private collection companies: Golden Gate Disposal and Sunset Scavenger. These companies, which operate under franchise agreements with the city, collect and transport the city's solid waste to the San Francisco Solid Waste Transfer and Recycling Center, located at the southeastern portion of the city. Recyclable materials are recovered and the remainder of the materials are hauled for disposal to the Altamont Landfill, 60 miles southeast of San Francisco in Alameda County. In November 1989, San Francisco contracted with the Altamont Landfill for 15 million tons of disposal capacity, which is estimated to accommodate the city's disposal needs through 2017.⁹

In 1990, the city conducted a solid waste generation study in conjunction with its Source Reduction and Recycling Element (SRRE). The study indicated that a total of about 1,027,000 tons of solid waste were generated in the city that year. Of that total about 310,000 tons, or 30

percent, was generated by residential sources; 406,000 tons, or 40 percent, was generated by commercial sources; 291,000 tons, or 28 percent, was generated by industrial sources; and 20,000 tons, or 2 percent, were generated by other sources. Of the total quantity of solid waste generated in San Francisco in 1990, about 360,000 tons, or 35 percent, was diverted from the waste stream, resulting in the disposal of 667,000 tons, or 65 percent, in landfills.¹⁰

Currently, UCSF does not have a formal recycling program at its existing sites; however, UCSF is in the process of establishing such a program in conjunction with Golden Gate Disposal and Sunset Scavenger. The program would recycle white paper, cardboard, cans, bottles, and plastic.¹¹

3. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant adverse impact on public services if the proposed LRDP development and uses would:

- require additional service resources to avoid reductions in service elsewhere, thus significantly affecting the physical environment, including human health and safety;
- require a substantial increase in the demand for police or fire service such that meeting the demand would require additional staff, vehicles, equipment or stations in excess of what is planned by local jurisdictions;
- create a substantial increase in local solid waste generation that would require the expansion of solid waste disposal facilities beyond foreseeable capacity; or,
- generate a substantial increase in student enrollments that causes secondary environmental impacts resulting from the construction of new classrooms or new schools or from increased busing.

4. IMPACT METHODOLOGY

The environmental impact analysis of public services in this EIR involves an assessment of existing public service standards and capacity. As necessary, respective public service providers were contacted for information on existing conditions as well as for their assessment of impacts and special service provision issues. The public service demands of LRDP activities were then calculated and compared to existing service capacity. Net impact of the LRDP on public services were calculated and the additional resources that would be required to maintain or meet existing service standards identified. For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

1. a) University of California San Francisco Police Department, General Order # 72, July 31, 1994. This item is contained as an Addenda to the UCPD *Business Plan*.

 b) Ronald D. Nelson, Chief of Police, University of California San Francisco, letter to EIP Associates, August 15, 1994
2. Ronald D. Nelson, Chief of Police, University of California San Francisco, letter to Erik Olson, EIP Associates, August 15, 1994.
3. University of California San Francisco Police Department, General Order #72, July 31, 1994. This item is contained as an addendum to the UCPD *Business Plan*.
4. Steve Lutes, Senior Analyst, Planning Division Office of the Chief, San Francisco Police Department, telephone conversation with EIP Associates, September 2, 1994.
5. San Francisco Fire Department, *Annual Report 1992-93*, June 1, 1994, page 7.
6. San Francisco Unified School District Planning, Research and Information Systems, *District and School Profiles 1993-1994*, February 1994, p. 1.
7. California Department of Finance, Demographic Research Unit, *San Francisco County K-12 Public School Enrollment 1974-2002*, September 29, 1993. This document reports total 1993-1994 K-12 school population in the City of San Francisco of 62,486, or 1,478 less than the San Francisco Unified School District's reported figure. However, regardless of this discrepancy in total enrollments, the State Department of Finance projections indicate that the trend for future enrollments is quite flat. These projections indicate that San Francisco student enrollments will peak during the 1997-1998 school year at 63,369 students, or only 1.4 percent greater than the current enrollment, and then declining gradually to 62,234 students by the 2002-2003 school year.
8. City and County of San Francisco, *Source Reduction and Recycling Element - Final Draft*, October 1992.
9. City and County of San Francisco, *Source Reduction and Recycling Element - Final Draft*, October 1992.
10. City and County of San Francisco, *Source Reduction and Recycling Element - Final Draft*, October 1992.
11. Eugene Lau, UCSF Environmental Health and Safety, telephone conversation with Michelle Schaefer, Environmental Coordinator, UCSF Campus Planning Office, March 6, 1996.

K. UTILITIES AND INFRASTRUCTURE

This section addresses the regulatory background, regional setting and methodology as they apply to utilities and infrastructure which include: water supply and distribution, wastewater treatment and collection, and electricity and natural gas supplies and distribution.

1. REGULATORY BACKGROUND

a. State Requirements

Assembly Bill 1350 - Utilities at UC Sites

AB 1350 which went into effect in 1988 requires the University of California to pay for expansion of capital facilities required to provide utilities for UC sites. The proportionate fair share of these capital expenditures is to be negotiated between UC and the relevant utility provider. This legislation applies to facilities to provide water, light, heat, communications, power, garbage service, flood control, drainage or sanitary utilities, and sewage collection, treatment or disposal.

The Warren-Alquist Act

Both the federal and state governments recognize the importance of energy conservation and have addressed the issue through legislation. The most encompassing energy legislation in the state is the Warren-Alquist Act. The Warren-Alquist Act, in effect since January 7, 1995, established the California Energy Commission (CEC) and gave it certain powers to certify power plants, conduct research and development of alternative energy sources, develop energy conservation measures and, in general, consolidate various state functions related to energy resources to implement policies to limit wasteful uses of electrical energy.

California Code of Regulations Titles 20 and 24

New buildings in California are required to conform to energy conservation standards specified in Titles 20 and 24 of the California Code of Regulations (the Code). The standards establish “energy budgets” for different types of residential and non-residential buildings, with which all new buildings must comply. The energy budget has a space-conditioning component and a water-heating component, both expressed in terms of energy (thousands of British thermal units) consumed per year. The Code allows for trade-offs within and between the components to meet the overall budget.

In California, cities and counties are required to have an energy analysis in the housing element of their General Plans. This energy analysis, in combination with Title 24, Part 2, Chapter 2-53 of the Code, determines residential energy consumption planning and patterns. There are separate sets of standards for low-rise residential, high-rise residential and hotel, and non-residential uses.

b. City of San Francisco Policies¹

The Environmental Protection Element of the *San Francisco Master Plan* contains the following Objectives and Policies that address the issue of water use in the city and would relate to the LRDP development in San Francisco:

Objective 5: Assure a permanent and adequate supply of fresh water to meet the present and future needs of San Francisco.

- Policy 1: Maintain an adequate water distribution system within San Francisco.
- Policy 2: Exercise control over development to correspond to the capabilities of the water supply and distribution system.
- Policy 3: Ensure water purity.
- Policy 5: Improve and extend the Auxiliary Water Supply System of the Fire Department for more effective firefighting.

2. REGIONAL SETTING

This section examines the existing conditions related to provision of water, wastewater, electricity and natural gas in the City of San Francisco. The discussion of the City of San Francisco's utilities and infrastructure is regional in the sense that the information applies to more than one site considered in the LRDP. The existing conditions of utilities and infrastructure in the City of Brisbane and the City of Alameda are discussed where relevant on a site-specific basis in Chapter 12, Major New Site, Section K, Utilities and Infrastructure, because the information is relevant only to single sites.

a. Water Supply and Infrastructure

The San Francisco Water Department (SFWD) serves a population of 2.3 million people, providing water to residential, commercial and industrial customers in the San Francisco Bay region through direct deliveries to the City of San Francisco and wholesale deliveries to 30 area water agencies.² The SFWD provides water from its sources at the Hetch Hetchy Reservoir (80 percent) mixed with water from the Sunol Filter Galleries (20 percent).

The eastern end of the SFWD's water distribution supply system, the point at which Hetch Hetchy water has its confluence with water from Sunol, has a maximum distribution capacity of 325 million gallons per day (mgd).³ The SFWD has estimated its "safe" or "firm" system yield at 243 mgd.⁴ This level represents the maximum long-term sustainable supply from annual runoff and total system storage capacity.⁵ The average daily demand from the area supplied by the department in Fiscal Year 1994 was approximately 240 mgd which is considered to be artificially low due to the effects of the recent six-year drought. The average daily demand was 290 mgd in 1987, the last "normal" year for water consumption in California,

as drought conditions persisted from that time through 1994. During drought periods, mandatory and voluntary consumption controls and incentives are employed to reduce consumption levels. It is unknown at this time whether total demand will return to its pre-drought levels, or whether the demand management measures undertaken during the drought (e.g., installation of low-flow toilets, showerheads) will result in a sustained lower annual demand for water.⁶ However, it is anticipated that new water rates imposed by SFWD in recent years will help maintain water demand at less than pre-drought levels.

The SFWD is preparing an Urban Water Management Plan. Based on existing contracted supply, the capacity to purchase additional supply if needed, water conservation measures and other strategic management techniques,⁷ the preliminary conclusion of the Urban Water Management Plan is that SFWD water supply would be adequate to meet the demand of cumulative development. The SFWD is in the process of preparing an Integrated Water Resource Plan to address future demands. The plan, which will incorporate traditional methods (e.g., meeting demand by increasing supply capacity) and non-traditional methods (e.g., conservation/demand management, recycling, reclamation), is expected to be completed by 2000.⁸

During the most recent drought period, the SFWD, for the first time in its history, purchased surplus water supplies from other water sources to augment its regular supply.⁹ Additionally, in an effort to increase its usable supply, the SFWD is currently working to develop plans for increased use of groundwater and reclaimed water.¹⁰ The SFWD is co-funding an analysis by the US Geological Survey to identify the major groundwater aquifers within San Francisco and analyze their potential as sources for both potable and non-potable water. The SFWD is also working with the city's Clean Water Program to develop reclaimed wastewater as a source of non-potable water.

Water consumption within the City and County of San Francisco from all sources is currently about 90 mgd, which is 37 percent of system-wide firm yield and 27 percent of maximum system-wide supply capacity.¹¹

b. Wastewater Collection and Treatment

San Francisco's combined sewer system collects stormwater runoff and domestic and commercial sewage in the same sewer lines. This system has the disadvantage of resulting in large amounts of combined stormwater runoff/sewage during wet-weather periods that can exceed storage and treatment facilities. This results in approximately 80 untreated wastewater spills into the ocean or the bay annually.¹² The City of San Francisco adopted a *Wastewater Master Plan* which outlines actions required to correct these overflow problems.

The local wastewater collection system uses gravity to transport sewage. For this reason, the city is divided into two separate drainages according to the direction of flow: the Bayside Drainage encompasses those areas where runoff flows in the direction of the San Francisco Bay and the Oceanside Drainage encompasses those areas where runoff flows towards the Pacific Ocean. Of all UCSF existing sites, only the Veterans Affairs Medical Center (VAMC) and a portion of the Parnassus Heights site's wastewater flows to the Oceanside Drainage. The

balance of Parnassus Heights wastewater, as well as that from all other existing UCSF sites (except the VAMC) flows to the Bayside Drainage. During wet-weather periods, wastewater and storm water runoff is conveyed to the treatment plants and excess flow is stored temporarily for subsequent treatment.¹³

Two sewage treatment plants, the Southeast Water Pollution Control Plant and the North Point Water Pollution Control Plant, serve the Bayside Drainage. The Southeast Plant has a design capacity of 85 mgd average dry-weather flow (ADWF), and 210 mgd peak wet-weather flow (PWWF).¹⁴ Currently, inflow to this plant averages approximately 60 mgd ADWF,¹⁵ resulting in a surplus design capacity of approximately 25 mgd. The PWWF capacity of the Southeast Plant is currently being expanded from 210 mgd to 250 mgd to minimize the occurrence of overflows. These modifications are anticipated to be completed in 1996.¹⁶ There are no capacity constraints that would restrict future development in the area served by the Southeast Plant.¹⁷

The North Point plant operates during wet-weather periods only and provides additional treatment capacity for the stormwater runoff from the Bayside Drainage. This plant has an operating capacity of 150 mgd PWWF.¹⁸ Because this plant operates only intermittently during periods of rainfall, there is no comparable measure for average flow, but past drought conditions have reduced the demands placed on this plant on an annual basis.

c. Electric Service

Pacific Gas & Electric Company (PG&E) is the public utility that supplies electricity to Northern and Central California, including all UCSF facilities in the San Francisco Bay Area. PG&E depends on a variety of energy sources to meet its energy demands. In 1994, PG&E operated a net peak-electrical capacity of 21,851 megawatts (MW) and maintained a reserve margin of 13 percent above the peak demand. The existing peak demand in the area is 16,300 MW, which results in a surplus capacity of approximately 5,500 MW. The California Energy Commission (CEC) forecasts that area peak-electric demand would increase by approximately 31 percent to approximately 21,400 MW in 2013. This increase would account for 92 percent of existing surplus capacity. PG&E anticipates preparing for these increases in electric demand by adding between 600 and 750 MW of electric resources through new purchases, solicitations, improvements in its existing generating system and further efficiencies in regional operations. PG&E currently plans no new major construction projects for electrical supply before the year 2000.

d. Natural Gas Supply and Infrastructure

PG&E distributes natural gas to its service area in Northern and Central California, including all UCSF facilities. The supply of natural gas has become increasingly plentiful in the last few decades, and the CEC expects natural gas supplies to remain plentiful over the next 20 years. Natural gas consumption in California is projected to increase to 2,585 billion cf in 2009, from 1,934 billion cf in 1989, a 34 percent increase.¹⁹ In 1994, natural gas consumption in PG&E's service area totaled approximately 431 billion cf. Based on the same rate of increase of 1.4

percent annually in natural gas demand projected for the state by the CEC, the natural gas demand in PG&E's service area would be approximately 538 billion cf in 2010.

3. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant adverse impact on utilities and infrastructure if the proposed LRDP development and uses would:

- use potable water in a wasteful manner or increase consumption of potable water to the extent that substantial expansion of water supply, treatment or distribution facilities is required;
- require substantial expansion of wastewater treatment and distribution capacity beyond that planned by local jurisdictions;
- result in the use of large amounts of energy, oil or natural gas in a wasteful manner, or create energy demand that exceeds the energy supplier's existing and planned energy capacity; or
- require the development of new sources of energy.

4. IMPACT METHODOLOGY

The analysis of the environmental impact of the 1996 LRDP on utilities and infrastructure services begins with an assessment of existing capacity of service providers. The respective utility providers are contacted for information on existing conditions presented above, as well as for their assessment of impacts and special service provision issues. The utilities and infrastructure services demands that the 1996 LRDP would generate are then calculated. The LRDP demand for utility service is then compared to the utility providers capacity. Thus, the additional resources required to maintain or meet the demand of the LRDP are determined, and any substantial adverse changes to the physical environment are identified. Typically, utilities assessments focus on supply, treatment or generation capacity and then on distribution or collection infrastructure requirements. For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

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1. City and County of San Francisco, Department of City Planning, *San Francisco Master Plan*, n.d.
 2. City and County of San Francisco, Public Utilities Commission, *Triennial Report FY 1989-1990, 1990-1991, and 1991-1992*, p. 7.

3. Norm Lougee, Water Supply Engineer, San Francisco Water Department, telephone conversation with Erik Olsen, EIP Associates, November 15, 1993.
4. Norm Lougee, Water Supply Engineer, San Francisco Water Department, telephone conversation with Erik Olsen, EIP Associates, November 15, 1993.
5. Norm Lougee, Water Supply Engineer, San Francisco Water Department, telephone conversation with Erik Olsen, EIP Associates, November 15, 1993. This estimate considers storage, runoff and system demand. At this level of use, water could be supplied for six years (the average period of a drought) without shortage. At the end of the six-year period it would be expected that a "wet" year would replenish the supply.
6. Kris Morioka, Resource Manager, San Francisco Water Department, telephone conversation with Erik Olsen, EIP Associates, August 24, 1994.
7. Kris Morioka, Resource Manager, San Francisco Water Department, telephone conversation with William Woo, EIP Associates, March 15, 1996.
8. Kris Morioka, Resource Manager, San Francisco Water Department, telephone conversation with William Woo, EIP Associates, March 20, 1996.
9. City and County of San Francisco, Public Utilities Commission, *Triennial Report FY 1989-1990, 1990-1991, and 1991-1992*, p. 7.
10. Kris Morioka, Resource Manager, San Francisco Water Department, telephone conversation with EIP Associates, August 24, 1994.
11. Norman Lougee, Water Supply Engineer, San Francisco Water Department, telephone conversation with EIP Associates, July 31, 1995.
12. City and County of San Francisco, Department of Public Works, San Francisco Clean Water Enterprise, *San Francisco's Combined Sewer Overflow Control Program*, October 1989.
13. City and County of San Francisco, Department of Public Works, San Francisco Clean Water Enterprise, *San Francisco's Combined Sewer Overflow Control Program*, October 1989, p. 3.
14. City and County of San Francisco, Department of Public Works, San Francisco Clean Water Enterprise, *Southeast Water Pollution Control Plant San Francisco*, October 1989.
15. Richard Giessner, Chief Engineer of Operations, Southeast Water Pollution Control Plant, telephone conversation with EIP Associates, August 23, 1994.
16. Alexander Mamak, Director of Public Information and Public Participation, San Francisco Clean Water Enterprise, telephone conversation with EIP Associates, August 22, 1994.
17. Richard Giessner, Chief Engineer of Operations, Southeast Water Pollution Control Plant, telephone conversation with EIP Associates, August 23, 1994.
18. Alexander Mamak, Director of Public Information and Public Participation, San Francisco Clean Water Enterprise, telephone conversation with EIP Associates, August 22, 1994.
19. California Energy Commission, *The 1992-1993 California Energy Plan*, 1992, Figure 4.

L. VISUAL QUALITY

1. REGULATORY BACKGROUND

a. University of California

The University of California has design review procedures to implement The Regents' policies on design and construction. The process provides for thorough review of proposed new construction including site selection, selection of architects and design professionals, and approval of the final design.

- The Office of the President participates in the design process of buildings and facilities, providing broader University input on design content, and reviews projects for compliance with University policy.
- The Regents provide final design review and approval on capital projects of \$5 million or more.

For projects requiring public review under CEQA, the environmental review process provides an avenue for public input into University decision-making. Environmental review would include an evaluation of a project's consistency with local regulation, including local design guidelines. Under the LRDP, UCSF would seek to work cooperatively with each local jurisdiction to understand their urban design regulations and objectives and, similarly, to have the jurisdiction fully understand UCSF's needs and urban design objectives for each of its sites, including the Major New Site.

b. Local Jurisdictions

Most jurisdictions address visual quality and aesthetic issues in their General Plans. Specific design standards, such as height and bulk limitations, are usually implemented by zoning regulations and/or design guidelines. Generally, new development must comply with these regulations or be granted some type of variance.

The LRDP Goals and Objectives include the objective of ensuring that new UCSF development conforms or is consistent with applicable local planning and zoning policies and regulations. The following is a summary of the various local plans and regulations that could pertain to LRDP visual quality issues.

- The *San Francisco Master Plan - Urban Design Element* contains policies relating to major new development and provides site and architectural design standards applicable throughout the city. The Element also designates view corridors of particular importance.
- The *San Francisco Master Plan - Central Waterfront Area Plan* encompasses part of the Mission Bay site and contains policies regarding urban design and visual quality.

- The *Mission Bay Plan* contains design objectives and policies that apply to the Mission Bay area.
- The *San Francisco Master Plan - South Bayshore Area Plan* encompasses the Executive Park site and contains urban design objectives relating to the appearance and visual definition of the area.
- The San Francisco City Planning Code contains height and bulk districts, and regulations that implement certain goals of the Urban Design Element.
- The *City of Brisbane General Plan* contains policies and suggested implementation programs that address potential impacts to visual resources.
- The *City of Alameda General Plan City Design Element* contains guiding and implementing policies regarding visual issues and resources.
- The *City of Alameda Harbor Bay Isle Development Plan and Development Agreement* contain development standards that apply to the Harbor Bay site. These standards address the maximum height and size of structures and design guidelines.

2. REGIONAL SETTING

The regional setting for the visual quality analysis includes three Bay Area counties: San Francisco, Alameda and San Mateo. All contain relatively dense, urban environments. Visual resources and issues within the region focus predominately on protection of waterfront views and long-range views and on encouragement of development that is compatible with adjacent existing or planned development and neighborhoods.

3. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant impact on visual quality if proposed LRDP development and uses would:

- create a substantial, demonstrable negative aesthetic effect;
- compromise preservation of important public views;
- produce light and glare that may substantially disturb activities in adjacent areas; or
- substantially reduce sunlight or increase shadows in public open spaces.

4. IMPACT METHODOLOGY

Visual impact assessment for purposes of this EIR includes a description of physical characteristics of the environment surrounding existing and potential UCSF sites to provide the setting against which impacts from LRDP activities can be evaluated. The existing physical characteristics include short-range and long-range views; the type, height and scale of existing development on or near a site; man-made landmarks such as major highways or skyline views; and natural landmarks such as hillsides or San Francisco Bay. The visual impact analysis considers the views from parks, recreational areas and other public areas. In general, views from public streets or open space are emphasized more than those from private areas. The proposed characteristics of LRDP activities also are assessed. This includes identifying the scale, massing, bulk and form of proposed development in the context of the surrounding environment. The changes to long- and short-range views caused by LRDP development at each site are addressed according to the specific conditions at each site.

This EIR does not analyze the visual impacts of final site plans or of particular building designs. Specific designs, the heights and bulk of buildings, or layout of open space areas and roadways that will be developed under the LRDP are not known at this time. To assess potential visual impacts of the LRDP at the Major New Sites, basic assumptions are discussed regarding the physical appearance of new buildings. The visual character of the Major New Site would be similar to that of an office/business park with large buildings. Because the building heights of Major New Site development are unknown, it is assumed that they would conform to applicable height limits for each Major New Site jurisdiction, consistent with proposed LRDP policies. New development at existing sites, such as Parnassus Heights or San Francisco General Hospital, is discussed in terms of maximum building size or envelope at a specific development location, and is also assumed to be responsive to local policies and codes.

For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

M. CULTURAL RESOURCES

1. REGULATORY BACKGROUND

The treatment of cultural resources is governed by national, state and local laws and regulations. There are specific criteria for determining whether prehistoric and historic sites or objects are significant and/or protected by law. Federal and state significance criteria generally focus on the resource's integrity and uniqueness, its relationship to similar resources and its potential to contribute important information to scholarly research. Local laws tend to focus on a resource's relationship to local history. Some resources that do not meet federal significance criteria are considered significant according to state or local criteria. The federal and state regulations and local historic preservation laws are discussed below.

This section examines the existing conditions of cultural resources in the City of San Francisco because the information applies to more than one LRDP site. The existing conditions of cultural resources in Alameda and Brisbane are evaluated on a site-specific basis since the information refers to single sites.

a. Federal

Under Section 106 of the National Historic Preservation Act, the National Register of Historic Places (National Register) is the United States' official list of cultural resources that are deemed worthy of preservation. The National Register includes districts, sites, buildings, structures and objects with local, regional, state or national significance. The definition of historic property includes "any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register." This definition also applies to artifacts, records and remains. "Historic" is defined as being over 50 years old. The criteria for listing on the National Register are: the quality of significance in American history, architecture, archaeology, engineering and culture as present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association, and that:

- are associated with events that have made a significant contribution to the broad patterns of our history;
- are associated with the lives of persons significant in our past;
- embody the distinctive characteristics of a type, period, or method of construction;
- represent the work of a master;
- possess high artistic values;

- represent a significant and distinguishable entity whose components may lack individual distinction; or
- have yielded, or may be likely to yield, information important in prehistory or history

The State Historic Preservation Officer nominates properties to the National Register when the Preservation Officer has determined that the property meets all of the eligibility criteria described above. The National Park Service then makes a determination on whether the property may be accepted into the National Register.

b. State

State law also protects cultural resources by requiring that prehistoric and historic resources be evaluated for significance when a CEQA document is prepared. Under CEQA, a cultural resource is considered significant if it meets any of the criteria found in *CEQA Guidelines*, Appendix K, summarized below:

- association with an event or person of recognized significance in Californian or American history;
- association with an event or person of recognized scientific importance in prehistory;
- can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable or archaeological research questions;
- has a special or particular quality such as oldest, best example, largest or last surviving example of its kind;
- is at least one hundred years old and possesses substantial stratigraphic integrity; or
- involves important research questions that historical research has shown can be answered only with archaeological methods.

The State Office of Historic Preservation maintains the Historical Resources Information System (formerly known as the California Archaeological Inventory) through 11 information centers throughout the state. The Northwest Information Center (NIC), which includes Alameda, San Mateo and San Francisco counties within its jurisdiction, is a repository for archaeological site records and other information on cultural resources, including the National Register and the California Inventory of Historic Resources and Points of Historic Interest lists. Upon request, the NIC conducts searches of its records to determine whether any cultural resources are known to exist in or near the subject property.

c. San Francisco Regulations, Policies, and Plans

In addition to the previously described federal and state regulations, Article 10 of the City Planning Code contains certain measures to identify structures or landmarks that have historical, architectural or aesthetic merit.¹ These structures are recorded in a list that is approved by the City Landmarks Preservation Advisory Board (Advisory Board) and includes all structures on federal and state lists. Applications to construct, alter or demolish structures that have been deemed to have significant merit require approval by the City Planning Commission before issuance of a permit.

The *San Francisco Master Plan* contains policies governing the preservation of historic architectural resources that are considered to be locally significant. The *Master Plan* Urban Design Element addresses: 1) preservation of landmarks designated by the Advisory Board; 2) enhancement of the original character of older buildings when remodeling; and 3) respecting the character of older nearby development in the design of new buildings.²

2. REGIONAL SETTING

The prehistoric (2500 BC to 1500 AD) occupation and use of the San Francisco Bay Area are not well known. The rapid development of the Bay Area during the California Gold Rush likely contributed to the destruction of many archaeological sites that may have existed or rendered those sites inaccessible due to surface cover. However, on the basis of archaeological data from Bay Area sites that have survived to the present and from ethnographic sources, archaeologists know that prehistoric lifeways in the Bay Area involved subsistence hunting and gathering. Seasonally, parties went out from villages to temporary camps within their territory to hunt and gather mussels and shellfish, salmon, seals and land mammals, and plant foods, typically acorns.³ The Costanoan California Indians occupied the Bay Area at the time of initial European contact. The term Costanoan is derived from the Spanish word "costaños," meaning coast people. The territory of the Costanoans extended from the confluence of the San Joaquin and Sacramento Rivers, to the (present-day) Golden Gate Bridge, along the entire southern arm of the San Francisco Bay south to the Salinas and Carmel Rivers. Inland territorial limits are believed to have extended to the Mount Diablo Range Mountains.⁴ All of UCSF's existing sites and the potential Major New Sites are within Costanoan territory.

Information on Bay Area protohistory (1550s to 1770s) and history (1770s to present-day) is more widely available than information on prehistoric cultural resources. This information is site-specific in nature and will be discussed in this EIR where applicable to UCSF's existing sites and the Major New Site.

3. STANDARDS OF SIGNIFICANCE

The LRDP would have a significant impact on cultural resources if the proposed LRDP development and uses would:

- destroy or otherwise substantially harm the integrity of a significant prehistoric or archaeological site, a property of historic or cultural significance to a

community or ethnic or social group, or a paleontological site, except as part of a scientific study (a significant cultural resource is one that would meet the criteria in *CEQA Guidelines*, Appendix K); or

- destroy or otherwise harm a formally designated landmark of cultural or historical importance.

4. IMPACT METHODOLOGY

Most of the sites where UCSF development could occur under the LRDP have undergone previous environmental review for cultural resources. Cultural resources analyses in the form of archival research, and field reconnaissance in some cases, have been conducted by qualified archaeologists through the Historic Resources Information System at the NIC and elsewhere. Information presented in the site-specific setting subsections in the following chapters are summarized from these prior investigations. Existing archaeological or historical conditions described in previous environmental review documents were assumed not to change with time, unless new discoveries were made during the course of recent construction activities at these sites. Therefore, updated cultural resources information was obtained by verifying whether any new discoveries were made of archaeological or historical resources during recent construction projects. For sites that were not previously analyzed for cultural resources, an original records search was performed at the Historic Resources Information System for data on previous archaeological surveys and site findings and is summarized in this EIR.

Information gathered from these sources is used to evaluate whether any impacts could occur to archaeological or cultural resources due to the proposed LRDP activities. For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

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1. City and County of San Francisco, Municipal Code, December 23, 1992, Planning Code, V. II, Art. 10 and 11.
 2. City and County of San Francisco, *San Francisco Master Plan*, n.d., Urban Design Element, p. I.5.24.
 3. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V. II, p. VI.J.1.
 4. A.L. Kroeber, *Handbook of the Indians of California*, California Book Company, Ltd., Berkeley, California, 1953, pp. 462-473.

N. POPULATION, EMPLOYMENT, AND HOUSING

This section discusses the regulatory background, regional setting and impact methodology as they apply to population, employment and housing. Population and employment effects are addressed for informational purposes and changes in the housing supply and demand are analyzed as potentially significant environmental impacts.

1. REGULATORY BACKGROUND

This section addresses the relationship between population, employment and housing changes and potential significant effects under CEQA. These effects are not regulated in the same context as, for example, air quality or hazardous materials. CEQA considers population and employment changes as social and economic effects that are not themselves potentially significant impacts on the physical environment.¹ Population and employment changes could indirectly trigger a range of physical environmental impacts that are analyzed in other sections of the EIR, such as traffic, air quality and public services.

Direct increases in employment can create a secondary impact—increases in demand for housing. This housing demand would be considered a significant effect if the housing demand could not be met with existing or future housing supply within the housing market for new UCSF employees.

The housing market is the area within which employees choose to live and meet their housing needs. The relevant housing market is influenced by a range of factors such as housing cost, commute distance/cost/time, type of residential area and quality of school system. The housing market can be characterized by the boundaries within which the majority of employees reside, in terms of actual distance, commute time or by county.

The construction or demolition of housing would be a physical environmental effect. While the development of housing itself would not be a significant adverse impact, construction of housing could create other environmental impacts, such as noise or air quality impacts. The demolition of housing would be a potentially significant physical impact if it resulted in a demand for housing which could not be accommodated within the market area within which UCSF facilities were to be located.

2. REGIONAL SETTING

Table 3-8 summarizes population, employment and housing trends and projections from 1995 to 2010 for San Francisco and the nine-county San Francisco Bay Region.

TABLE 3-8: TRENDS AND PROJECTIONS
San Francisco and Regional Population, Employment and Households

	Year		Growth 1995-2010	
	1995	2010	Total	Percent
Population				
Bay Area	6,492,950	7,539,600	1,046,650	16%
San Francisco	759,900	800,600	40,700	5%
City as % of Bay Area	12%	11%	N/A	N/A
Employment¹				
Bay Area	3,028,290	3,826,520	798,230	26%
San Francisco	534,610	623,100	88,490	17%
City as % of Bay Area	18%	16%	N/A	N/A
Households²				
Bay Area	2,338,560	2,725,710	387,150	17%
San Francisco	311,430	333,200	21,770	7%
City as % of Bay Area	13%	12%	N/A	N/A

Notes:

1. Jobs within indicated area.
2. This corresponds to an estimate of occupied housing units.

Source: Association of Bay Area Governments, *Projections 96*, December 1995.

- **Employment.** There were approximately three million jobs in the Bay Area in 1995. The Association of Bay Area Governments (ABAG) projects an increase of nearly 800,000 jobs between 1995 and 2010, an increase of 26 percent.
- **Population.** Regional population was almost 6.5 million in 1995. ABAG projects that growth in the existing population combined with immigration will increase the Bay Area's population by more than one million people between 1995 and 2010, an increase of 16 percent.
- **Households.** ABAG projects an increase of 387,000 households region-wide from 1995 to 2010, an increase of 17 percent over the 1995 household level of 2.3 million.

ABAG's projections for the number of households in 2010 are an estimate of demand for housing as well as an expectation of future housing production (supply). The demand for housing is influenced by many factors, such as new employment and in-migration, the aging of the existing population and its effect on household formation and demographic changes in household size. In cases where there is sufficient residential land available for housing production, ABAG's projections of households are also an estimate of future housing production and of occupied housing units. This is a reasonable expectation in a market economy where supply responds to demand, although it is understood that 1) supply responses are not instantaneous, 2) imbalances in demand and supply do occur over periods, and 3) these periods of imbalance are generally mediated by price.

ABAG also evaluated whether the region's economy would have sufficient housing supply potential to meet the projected increase in demand. ABAG's Local Development Policy Survey database estimates the residential development potential of existing land zoned or designated for residential development in city or county General Plans. This residential development potential reflects the express planning constraints of the relevant General Plans, many of which have planning horizon years of 2000 or 2005, not 2010 or 2015. As those plans are updated, additional land may be designated for residential development or land currently designated for residential use could be designated for other uses. As such, ABAG's assessment reflects total planned residential development capacity as of 1995 and does not represent a maximum regional supply. ABAG's database indicates that the region as a whole has a current planned supply over the 1995-2015 period of 503,000 new units and another 41,000 new units of post-2015 supply.² Based on a region-wide demand for 387,000 new units by 2010 or 492,000 new housing units by 2015, the regional supply of 503,000 new units could meet this demand with an unused balance of 116,000 units by 2010 and 11,000 units remaining by 2015.

ABAG also assessed housing supply and demand on a county-by-county basis. ABAG found that "the counties with a surplus of potential units include Contra Costa County and, to a lesser extent, San Francisco and San Mateo Counties" and that "land supply appears sufficient to accommodate the residential growth forecasts throughout the region until 2005, when it becomes a possible constraint in three counties (Alameda, Solano, and Sonoma counties), and one county after 2010 (Santa Clara)."³

The California State Department of Finance (DOF) also assembles data on existing housing units.⁴ It estimates that the Bay Area had a total of 2,451,600 housing units in 1995. This includes mobile homes and group quarters as well as vacant units. The DOF estimates that 2,393,950 units are occupied (2.4 percent more than ABAG's 2,338,500), yielding a region-wide vacancy rate of 2.35 percent, lower than the California state-wide average vacancy rate of 7.4 percent.

Table 3-9 shows the counties of residency of persons employed in San Francisco in 1990. Of the 551,000 jobs located outside the home in San Francisco, 53 percent were held by San Francisco residents, 13 percent were held by residents of Alameda County, 14 percent were held by residents of San Mateo County, 6 percent were held by residents of Marin County, 9 percent were held by residents of Contra Costa County, and 5 percent were held by residents of other counties.

**TABLE 3-9: COUNTY RESIDENCES OF PERSONS
WORKING IN SAN FRANCISCO**

County of Residence	Out-of-Home Workers ¹ (In SF Jobs)	Mean Travel Time (Minutes)	Percent
San Francisco	292,921	24	53%
Alameda	70,999	43	13%
San Mateo	79,022	34	14%
Marin	33,690	43	6%
Contra Costa County	47,714	53	9%
<i>Subtotal</i>	524,346		95%
Solano	9,829	63	2%
Napa	1,044	64	0%
Sonoma	8,357	65	2%
Santa Clara	7,594	57	1%
<i>Total SF Non-Home Jobs</i>	551,170		100%

Notes:

1. Workers whose place of business is not their home.

Source: Metropolitan Transportation Commission, Planning Section, *The Journey-To-Work in the San Francisco Bay Area*, 1990 Census, Census Transportation Planning Package (Statewide Element), Working Paper #5, April 1995, pp. 51-52.

a. City of San Francisco

San Francisco's employment, population and housing growth is expected to be slower than that of the region as a whole (see Table 3-8). San Francisco's share of regional employment was 18 percent in 1995 and ABAG projects San Francisco's share will decrease to 16 percent in year 2010. ABAG projects an increase of approximately 88,500 jobs in San Francisco, to a total of 623,000 jobs by year 2010. This would be a 17 percent increase over the 1995 employment of 534,600 jobs. San Francisco's job growth would be about 11 percent of projected regional growth of 800,000 jobs between 1995 and 2010.

San Francisco, with a population of 759,900 residents in 1995, ranks as the fourth most populous county in the nine-county San Francisco Bay Region, behind Santa Clara (1.6 million), Alameda (1.4 million) and Contra Costa (883,000) counties. San Francisco had a 12 percent share of regional population (6.5 million) in 1995. ABAG projects a decline in San Francisco's

regional share to 11 percent by 2010. Between 1995 and 2010, ABAG projects an increase of 40,700 new residents of San Francisco, an increase of five percent over existing 1995 levels and a four percent share of projected regional population growth (1.05 million) by 2010.

ABAG projects an increase of approximately 21,770 households in San Francisco to a total of 333,200 households by year 2010, an increase of seven percent over 1995. San Francisco's household growth would be about six percent of projected regional growth of 387,000 households. ABAG's projection of San Francisco's household growth is less than the estimate of San Francisco's unconstrained housing supply potential of 36,700 units by 2015, as discussed above, indicating that projected supply could meet projected demand.

The DOF estimates that San Francisco had a total of 333,600 housing units in 1995, including mobile homes (113), of which 311,179 were occupied, yielding a vacancy rate of 6.7 percent.⁵ Approximately 35 percent of San Francisco's occupied housing units are owner-occupied and 65 percent are renter-occupied.⁶

b. University of California San Francisco

Employment

UCSF operates at more than ten sites within the San Francisco Bay Area. At these sites, UCSF employed approximately 12,800 persons in 1996.⁷ At the ten sites operated within San Francisco, UCSF employed approximately 12,300 persons or 2.3 percent of San Francisco's total employment in 1995 of 534,000 jobs.⁸ Approximately 8,500 employees are located at the Parnassus Heights site or vicinity.⁹ Total UCSF employment represents about 0.5 percent of total regional employment in 1995 of three million jobs.

Residential Location of Employees

Table 3-10 shows the county of residence of UCSF employees. The majority of UCSF employees, 56 percent, reside in San Francisco. That fraction is similar to the 53 percent of all San Francisco jobs which are held by San Francisco residents. UCSF employees who reside outside of the city live primarily in the South Bay and East Bay (approximately 16 percent each), and in the North Bay area (approximately nine percent).

3. STANDARDS OF SIGNIFICANCE

The Regulatory Background of this EIR, Chapter 3, notes that population, employment and housing changes, in and of themselves, are not normally considered to be significant impacts (substantial, adverse impacts on the physical environment) under CEQA. However, CEQA does allow inclusion of these effects as indicators and influences on other impacts. Therefore, this EIR section quantifies and describes the magnitude of such potential changes. The potentially

TABLE 3-10
RESIDENTIAL LOCATION OF UCSF EMPLOYEES

Area	Residents	Percent
Bay Area		
San Francisco	8,331	56%
North Bay	1,376	9%
East Bay	2,382	16%
South Bay	2,352	16%
Total Bay Area	14,441	97%
Total Outside Bay Area	475	3%
TOTAL	14,916	100%

Source: University of California San Francisco, INFORM Employee Database, April 1993.

significant physical environmental impacts associated with changes in population, employment and housing are analyzed in other sections of this EIR (e.g., traffic, public services, air quality). For purposes of this EIR, LRDP impacts on population and housing are considered significant if the proposed LRDP development and uses would:

- induce substantial growth or concentration of population;
- displace a large number of people; or
- create a demand for housing which could not be accommodated within the market area where the facilities or site are located.

4. IMPACT METHODOLOGY

The analysis of housing impacts involves a calculation of the projected housing demand and supply in the relevant market areas. To assess housing demand associated with new UCSF employment under the LRDP, the most conservative household formation assumption is that each new employee would create one new household. Over larger populations, the average worker-per-household ratio is typically higher than one and less than two workers per household. This range indicates that one new employee would create less than one new household because some of those employees would be living in the same household. This estimated housing demand is then compared to the project housing supply to determine if any impact would result.

The outer boundaries of the housing market for employees with jobs located in any particular jurisdiction can be characterized with journey-to-work data from the decennial census.¹⁰ In

general, most employees seem to live within a 60-minute commute of their place of work. This corresponds approximately to the nine-county Bay Area, for which housing and population projections are available from ABAG studies. If housing supply meets or exceeds demand, then the secondary housing demand impact would not be significant. For each potential impact, the analysis compares the net impact to the standards of significance stated above and determines the impact's level of significance under CEQA. If the impact would be a significant impact, the analysis identifies mitigation measures that would eliminate the impact or reduce it to a less-than-significant level. If the impact cannot be reduced to a less-than-significant level, then the impact would remain significant and unavoidable after implementation of all feasible mitigation measures.

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1. State Office of Planning and Research, *CEQA Statutes and Guidelines*, Section 15131, 1995.
 2. Association of Bay Area Governments, *Projections '96*, December 1995, Table 12, Housing Unit Supply and Projected Household Growth, p.40.
 3. Association of Bay Area Governments, *Projections '96*, December 1995, p. 39.
 4. California State Department of Finance, *Report E-5*, January 1, 1995, pp. 1-2.
 5. California State Department of Finance, *Report E-5*, January 1, 1995, p. 44.
 6. US Department of Commerce, 1990 Census.
 7. University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996, Table 7, Current and Projected UCSF Population, p. 46 (faculty, staff, post-doctoral scholars).
 8. University of California San Francisco, Office of Campus Planning, March 1995, Parnassus Heights, Mount Zion, San Francisco General Hospital, Laurel Heights, Mission Center, Veterans Administration Medical Center, Hunters Point, Harrison Street, and Executive Park.
 9. University of California San Francisco, Office of Campus Planning, March 1996.
 10. Metropolitan Transportation Commission, *The Journey-to-Work in the San Francisco Bay Area*, 1990 Census, Census Transportation Planning Package (Statewide Element), Working Paper No. 5, April 1993.

Parnassus Heights

Chapter 4: Parnassus Heights

A. INTRODUCTION

1. PURPOSE AND ORGANIZATION

This chapter assesses the potential environmental effects of LRDP implementation at Parnassus Heights for all environmental topics, allowing the reader to review the analysis of all of the LRDP's potential effects at Parnassus Heights in one chapter of the EIR. In contrast, Chapter 12, Major New Site, analyzes the environmental effects of each environmental topic at each of the three potential Major New Sites. The structure of the Major New Site analysis is more appropriate to UCSF's need to select from among those potential sites. As necessary, site specific regulations, information on the environmental setting, or methodology applicable only to Parnassus Heights are included within this chapter.

As discussed in Chapter 1, Introduction, this EIR analysis also is intended to serve as project-level environmental review of future projects undertaken at Parnassus Heights, primarily demolition and replacement of the Aldea Student Family Housing, UC Hall and Medical Research IV buildings. Please see Section E.1.a. of Chapter 2, Project Description, for a description of future projects.

2. ACRONYM GLOSSARY

ACBM	Asbestos-Containing Building Materials
ADP	Average Daily Population
ADT	Average Daily Traffic
AEL	Acceptable Exposure Levels
asf	assignable square feet
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BART	Bay Area Rapid Transit
CAA	Clean Air Act
Cal-OSHA	California Occupational Safety and Health Administration
CALINE4	Computer model used to project roadside carbon monoxide levels
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
cf	cubic feet
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society

CO	Carbon Monoxide
CUP	Central Utilities Plant
dB	Decibel
dBA	A-weighted decibels — measure a sound's frequency components in a manner approximating the human ear.
DTSC	California Department of Toxic Substances and Control
EH&S	UCSF Environmental Health and Safety
EIR	Environmental Impact Report
EMFAC7F1.1	California Department of Transportation's model for on-road vehicular emission rates
EPA	Environmental Protection Agency
gpd	gallons per day
gsf	gross square feet
HRA	Health Risk Assessment
HVAC	Heating Ventilating and Air Conditioning
L _{dn}	The day-night average noise level for a 24-hour period.
LOS	Level of Service
LRDP	Long Range Development Plan
MEI	Maximally Exposed Individual
mgd	million gallons per day
MOU	Memorandum of Understanding
MR	Medical Research
MUNI	San Francisco Municipal Railway
MW	Megawatt
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO _x	Nitrogen Oxides
PCBs	Polychlorinated biphenyls
PG&E	Pacific Gas & Electric
PM ₁₀	Suspended particulate matter less than 10 microns
ppm	parts per million
RHB	Radiologic Health Branch
ROG	Reactive Organic Gases
SFFD	San Francisco Fire Department
SFM	State Fire Marshall
SFPD	San Francisco Police Department
SFUSD	San Francisco Unified School District
SFWD	San Francisco Water Department
SR	State Route
TBACT	Best Available Control Technology for Toxics
TDM	Transportation Demand Management
UCPD	University of California Police Department
UCSF	University of California San Francisco
US DOT	United States Department of Transportation
V/C	Volume/Capacity ratio
VAMC	Veterans Affairs Medical Center

B. LAND USE

1. SITE-SPECIFIC SETTING

a. Land Use

This section addresses existing land use conditions and the potential impacts of LRDP activities at the Parnassus Heights site. Impacts are discussed with regard to the anticipated physical changes at the site under the LRDP.

Parnassus Heights is the oldest and largest, both in terms of land and population, of the multiple sites that make up UCSF. It sits on 107 acres at the foot of Mount Sutro, in the Inner Sunset neighborhood of San Francisco. The site is adjacent to residential neighborhoods of mixed densities. Neighborhood commercial districts nearby include the Irving Street/Ninth Avenue area to the west and the Haight Street/Stanyan Street area to the east. Golden Gate Park is located three blocks to the north. UCSF also leases several properties in the vicinity, including a portion of 350 Parnassus Avenue, Laguna Honda School and other smaller properties.

Parnassus Heights is bisected by Parnassus Avenue, which runs east-west through the site (see Figure 2-2 in Chapter 2, Project Description). Medical Center Way, a two-lane private road, connects the Lower Campus Shelf of Parnassus Heights with the Aldea area at the summit of Mount Sutro. The Woods area of the site is situated between the Lower Campus and the Aldea Student Housing area. The Mount Sutro Reserve comprises approximately 61 acres of the 107-acre Parnassus Heights site, and is designated by The Regents as permanent open space.¹

About 46 acres of the site contain relatively dense development. Most of the buildings at Parnassus Heights are located on the 33-acre Lower Campus Shelf, adjacent to Parnassus Avenue (see Figure 2-3 in Chapter 2, Project Description). Parnassus Heights land uses are subdivided into five functional zones for reference and general planning purposes. These functional zones are identified as follows (detailed descriptions are provided in Chapter 2, Project Description, Section E.1.a.):

- **Clinical Care.**
- **Logistical Support.**
- **Instruction and Research.**
- **Campus Community.**
- **Housing.**

In 1976, The Regents passed a Resolution limiting built space at Parnassus Heights to 3,550,000 gsf.² As of December 1994, the total building area at Parnassus Heights subject to the space ceiling limitation was 3,691,299 gsf, or four percent higher than the limit. This space ceiling exceedance will be reduced when the Central Utilities Plant is complete. Construction

of the Central Utilities Plant, approved in 1994, is underway. The plant will replace the outmoded existing power plant with a new cogeneration facility and chilled-water plant. As part of the Central Utilities Plant project, the existing Laundry/Storehouse was demolished, and the Generator and Heating Plant buildings will be demolished after the new plant is tested and approved for operation. Completion of the Central Utilities Plant, with the accompanying demolitions, will decrease the space coverage by about 7,205 gsf and will result in a new total of 3,684,094 gsf, or 3.8 percent over the ceiling by 1997. The 1996 LRDP proposes to further reduce the space ceiling coverage through a series of demolition and replacement projects at Parnassus Heights by about another 69,039 gsf, lowering the space ceiling coverage to 3,615,055, or 1.8 percent above the space ceiling.

b. Local Plans and Codes

San Francisco Master Plan

UCSF's Parnassus Heights site is identified in the *San Francisco Master Plan* as an Institutional Use. Objective 9 of the Institutional Facilities Section, Community Facilities Element of the *Master Plan* states the city's intention to "assure that institutional uses are located in a manner that will enhance their efficient and effective use." Policy 1, under Objective 9, specifically identifies UCSF Medical Center at Parnassus Heights as a part of the Institutional Facilities Plan.

San Francisco City Planning Code

The City Planning Code (Zoning Ordinance) of the City and County of San Francisco implements the objectives and policies of the *San Francisco Master Plan*. City Zoning Maps identify the Parnassus Heights site as "P", for Public Use District. Height and Bulk Districts designated for Parnassus Heights on the City Zoning Maps are defined under Section 270 of the City Planning Code as 25-X, 40-X, 65-D, 130-D and 220-F. The locations with an "X" designation allow building heights of 25 or 40 feet, and permit all floors of the structures to cover the entire building footprint. The "D" and "F" designations allow building heights on the site of 65, 130 or 220 feet, but limit floor plans above 40 feet to a maximum plan length of 110 feet and a maximum diagonal plan dimension of 140 feet.

c. Memorandum of Understanding

Although UCSF is constitutionally exempt from compliance with local planning and zoning requirements, UCSF prefers to maintain cooperative relations with city planning authorities. In furtherance of UCSF's intention, UCSF entered into a Memorandum of Understanding (MOU) with the City and County of San Francisco in 1987 regarding coordination on matters of mutual interest. A summary of the MOU is provided in Chapter 3, Section B, Land Use, and the MOU is reprinted in its entirety in Appendix 2.

2. IMPACTS AND MITIGATION MEASURES

Impact 4B-1. Consistency with Local Plans and Policies (Project/Less Than Significant). Implementation of the 1996 LRDP at Parnassus Heights would be consistent with local land use plans, and adopted environmental goals, plans and policies of the city.

The proposed development at Parnassus Heights under the 1996 LRDP could be accommodated in a variety of building configurations and site plans that would meet the LRDP goals and be responsive to the city's land use plans and policies. The analysis in this section addresses both the general land use effects of implementing LRDP activities at Parnassus Heights and the specific land use effects that could result from particular LRDP projects, such as the Aldea Student Housing, Medical Research (MR) IV and UC Hall replacement projects.

The LRDP proposals for Parnassus Heights would continue institutional, medical center-related uses at the site, consistent with the *San Francisco Master Plan* description of the site.

Mitigation Measure 4B-1. (Less Than Significant). None required.

Impact 4B-2. Conflict With Local Zoning (Project/Significant). Construction of replacement housing at Aldea San Miguel and the Medical Research IV (MR IV) replacement building could exceed the City of San Francisco's height limits for these sites.

The replacement units at the Aldea San Miguel Housing site would be three stories and are located in a 25-foot height district under the city's Planning Code. The existing housing is two stories high. Given normal residential building floor heights of nine to ten feet, the new building may not comply with the city's height limit. The opportunity to slope roofs, set back units, and the existence of mature landscaping on the site would reduce the effect of this increased height. UC Hall is proposed to be replaced by a three- to five-story structure which would be used for instruction and research. This site is within a 130-foot height district. With the larger floor-to-ceiling heights required for research and instruction buildings, the new building would be expected to comply with the city's height limit.

The MR IV replacement building is expected to be three to four stories tall with 15-foot floor-to-floor heights. Depending on the floor height and number of stories, the replacement building could exceed the 40-foot City Planning Code height district within which it is located. Although the city's height limits do not apply to UCSF, the height limits are used in this EIR to assess the significance of impacts, and this height exceedance would be a significant impact.

It is anticipated that all of these new structures could be designed to comply with the city's bulk limits.

Mitigation Measure 4B-2. (Significant).

The University of California is exempt from local zoning; however, the LRDP Goals and Objectives express UCSF's intention to work with local jurisdictional land use planning and zoning guidelines. To the extent feasible, UCSF would site and design

the replacement structures so as to avoid or minimize the effects of this conflict with the City of San Francisco City Planning Code. Alternatively, UCSF could request that the city amend the applicable City Planning Code provisions to establish higher height limits for portions of the Parnassus Heights site. Unless the City Planning Code is amended, even with implementation of the mitigation measure, the conflict with the City Planning Code would be substantial and would constitute an unavoidable adverse impact.

Impact 4B-3. Compatibility with Existing Land Uses (Project/Less Than Significant).
The LRDP projects at Parnassus Heights would result in physical changes to the site which would be compatible with existing land uses.

The LRDP proposes demolition of some existing structures, the construction of new buildings, and the conversion or rehabilitation of other existing structures at Parnassus Heights (see Chapter 2, Project Description, for specific descriptions of the alterations to structures). As detailed in Chapter 2, the LRDP proposals would introduce physical changes to the Parnassus Heights site. Summaries of the major LRDP proposals are as follows:

- Demolish the 146,853-gsf UC Hall and the 12,252-gsf MR IV Building and replace them with two new buildings containing primarily research and instruction uses which together would not exceed 85,000 gsf. Depending on the design selected, the replacement building for MR IV would consist of three to four stories (stepped back), and the replacement for UC Hall would be three to five stories (stepped back). The size of the new structures would range between 25,000 gsf and 60,000 gsf with a total not to exceed 85,000 gsf.
- Construct in two phases up to 111,000 gsf of academic support space. Develop in Phase 1 a new Parnassus Services Building (PSB) on the sites of the demolished Generator and Heating Plant buildings. This would include the demolition of the Central Services Building (3,769 gsf) and Medical Research Annexes (1,804 gsf). A 93,000-gsf, five-level services building containing animal care, environmental health and safety, and materiel management facilities would be constructed during Phase 1 of the PSB project.
- Demolish the 33,687-gsf MR I/II Building after the completion of Phase 1 of the Parnassus Services Building and construct Phase 2 of the building at the site. This would provide an additional 18,000 gsf in two levels.
- Demolish without replacing the Proctor, Surge and Woods Buildings, removing a total of about 25,000 gsf of space. The Proctor Building could be replaced by housing facilities.
- Demolish without replacing the Laboratory of Radiobiology, removing a total of about 18,000 gsf of space.

- Renovate or demolish and rebuild structures currently containing non-residential uses, to be replaced with residential facilities for students, faculty or short-term use by the families of Medical Center patients (for 374 and 735 Parnassus Avenue only).
- To address major building code, infrastructure and functional deficiencies, the 105,886-gsf Aldea San Miguel Student Family Housing facility would be demolished and replaced with an upgraded facility. The project would provide fewer but larger units, with new child care and recreation facilities. Upon completion, the housing complex would contain the same total gross square footage as under existing conditions.

Implementation of the LRDP at Parnassus Heights would result in some physical changes at the Parnassus Heights site, but land uses would not change. LRDP proposals would further implement educational, residential, clinical, administrative, support and research uses in areas where these uses are already developed, and no adverse change would result to the land use character, function and purpose of the Parnassus Heights site. This project would have no adverse effect on the land use character of the Aldea parcel and would not conflict with local planning regulations. LRDP proposals would result in a somewhat less intensive use of Parnassus Heights and would not have an effect on adjacent land uses.

Mitigation Measure 4B-3. (Less Than Significant). None required.

Impact 4B-4. Consistency with University Plans and Policies (Project/Less than Significant). Implementation of 1996 LRDP proposals at Parnassus Heights would reduce the overage in the space ceiling limit by about one half.

Upon completion of projects already underway at Parnassus Heights, the building gsf applicable to the ceiling would be 3,684,094 gsf. The 1996 LRDP proposals for Parnassus Heights would decrease the space overage by about another 69,039 gsf, lowering total building square footage applicable to ceiling to about 3,615,055 gsf (1.8 percent over the specified ceiling). The residential conversion of sites at 374 and 735 Parnassus, 145 Irving, 1308-10 Third Avenue and 1486-88 Fifth Avenue could reduce the ceiling overage by up to 23,331gsf but would not eliminate that space from the actual built space of the Parnassus Heights site. If 374 and 735 Parnassus were converted to short-term housing for families of medical center patients, it may not be residential use, and so may not be exempt from the ceiling. Detailed descriptions of the LRDP improvements to the Parnassus Heights site are provided in Chapter 2, Project Description, of this EIR.

Complete elimination of the overage would occur beyond the time frame of this LRDP.

Mitigation Measure 4B-4. (Less Than Significant). None required.

1. One of the LRDP proposals is to update the designated area of open space reserve to reflect the recent survey that found the area to contain 61 acres, rather than 58 acres, as described in The Regent's resolution creating the permanent open space reserve.
2. Excluding buildings along Third, Fifth and Parnassus Avenues, and Irving Street that are used as housing.

C. TRAFFIC/CIRCULATION/PARKING

1. SITE-SPECIFIC SETTING

a. Background

This section describes existing roadway infrastructure, traffic volumes, traffic operations, transit services, parking conditions, and bicycle and pedestrian circulation patterns at the Parnassus Heights site. The analysis of future conditions reflects land use and population changes expected with the full implementation of the 1996 LRDP at Parnassus Heights, in the context of background growth in traffic. Traffic operations at Parnassus Heights were analyzed using a combination of corridor-level (segment) analysis and intersection analysis. Corridor analysis was conducted for Lincoln Way, Irving Street, Judah Street, Parnassus Avenue, Seventh Avenue, Third Avenue, Kezar Drive, Fell and Oak Streets, and Stanyan Street. This analysis has been prepared using standard capacity values for different types of streets. See Chapter 3, Section C, for more detail on this approach.

In order to be consistent with transportation analyses for the Major New Site in Chapter 12, the corridor methodology is used in this chapter to analyze existing and future traffic conditions at Parnassus Heights. The intersection-level analyses, which confirm the level of service conclusions of the corridor approach, are included in Appendix 3. In contrast to the program level analysis of the Major New Site, the decision to perform a more detailed intersection analysis at Parnassus Heights reflects the more detailed, project-level elements of the LRDP proposals for the Parnassus Heights site, which include locations of buildings to be demolished or replaced on a site-by-site basis.

The description of existing traffic, circulation and parking conditions at Parnassus Heights includes data collected in the following FEIRs: the *Vision Research Laboratory FEIR*, the *Campus Library FEIR*, and the *Parnassus Heights Central Utilities Plant Project FEIR*.¹ Other reports relied upon in this analysis include the *UCSF LRDP Existing Conditions Report: A Technical Reference on Physical Planning* and the *UCSF LRDP — UCSF Parnassus Campus Parking Demand Estimates Discussion Paper*.²

b. Vehicle Access

The Parnassus Heights site is located in a highly urbanized, generally built-out area of San Francisco. Traffic can be congested during peak hours along established circulation routes. Traffic moving through Golden Gate Park from US 101 mixes with traffic generated by local residents and visitors to Parnassus Heights at several locations: on Oak and Fell Streets, Lincoln Way, Parnassus Avenue, Irving Street and Seventh Avenue. Radial, cross-town, feeder routes and the N-Judah MUNI Metro light rail line serves the area. Pedestrian and bicycle activity in the area also contribute to the transportation environment.

Vehicle access to Parnassus Heights from Marin County is provided by way of the Golden

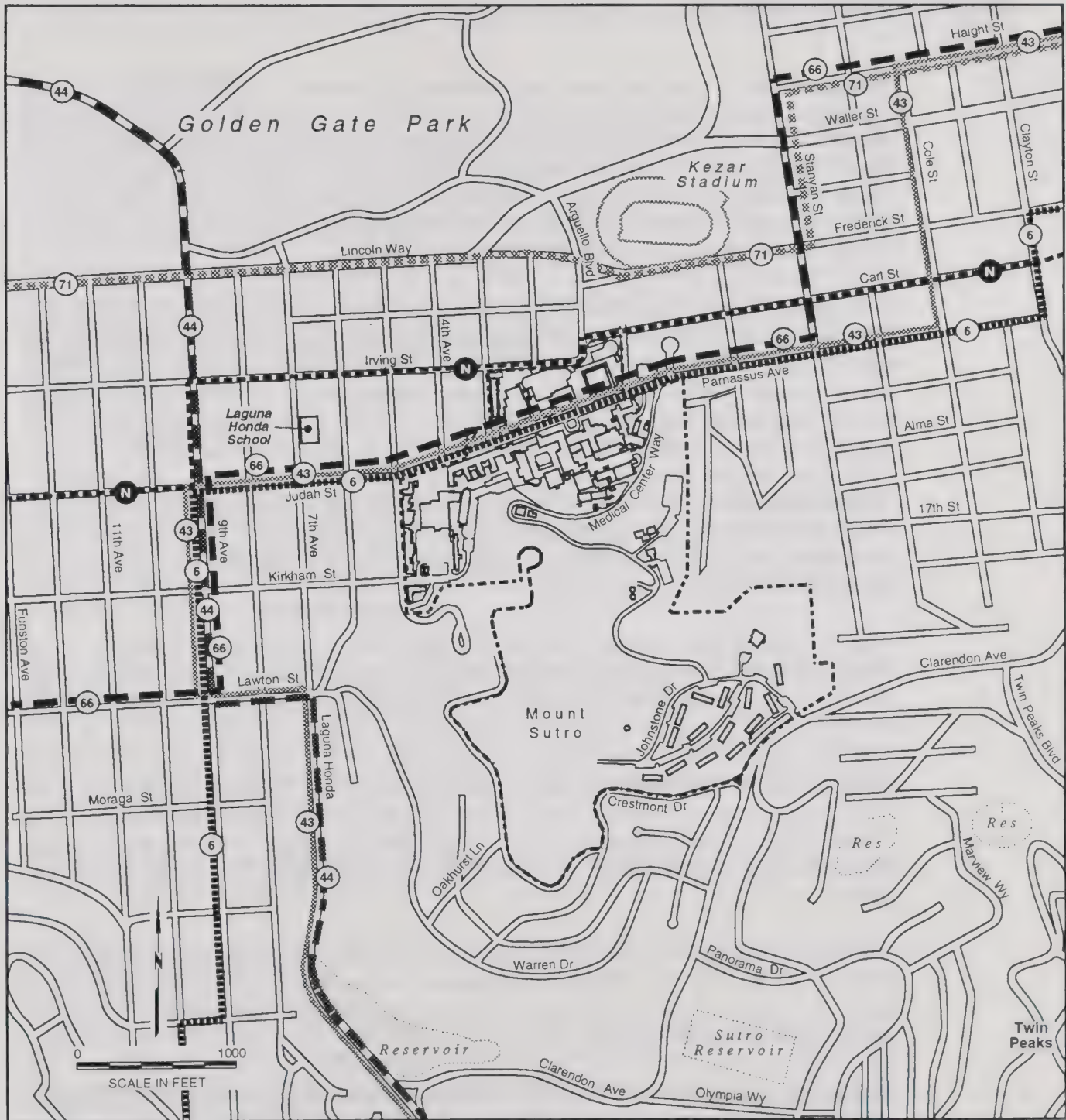
Gate Bridge, State Route (SR) 1 through the Presidio (Park Presidio Boulevard and 19th Avenue), and Judah Street to Parnassus Avenue. Access from San Mateo County is via I-280, 19th Avenue and Judah Street or from US 101 and the Oak-Fell Streets one-way couplet. From the East Bay, the main access is via the Bay Bridge, US 101 to the Fell-Oak Streets one-way couplet, Stanyan Street and Parnassus Avenue. Because of the network of through streets, traffic from regional destinations tends to disperse over a number of local streets for access to Parnassus Heights and for parking.

Table A-3-7 in Appendix 3 presents the daily and peak-hour volumes, capacities and levels of service under existing conditions for the study corridors in the Parnassus Heights area. Primary corridors that provide access to the Parnassus Heights campus site are listed on the pages that follow (see Figure 4-1).

Parnassus Avenue/Judah Street is the main east-west arterial in the Parnassus Heights area (west of Fifth Avenue, it becomes Judah Street). Parnassus/Judah connects major north-south arterials at Stanyan Street on the east and 19th Avenue on the west. Through the campus, Parnassus Avenue has one traffic lane and one parking lane in each direction. Parnassus Avenue provides one access route to the Millberry Union public parking garage. Two heavily used campus crosswalks cross Parnassus Avenue at points east and west of Millberry Union. West of Ninth Avenue, Judah Street has a raised center median for the N-Judah MUNI Metro light rail line. Parnassus Avenue is the most heavily traveled arterial near the Parnassus Heights site and east of Fifth Avenue it carries an Average Daily Traffic volume (ADT) of 14,100 vehicles, and operates at Level Of Service (LOS) E. Between Fifth Avenue and 19th Avenue, Judah Street carries an ADT of 9,900 vehicles, and operates at LOS D. The *San Francisco Master Plan* classifies Parnassus Avenue/Judah Street as a Transit Preferential Street.³ A Transit Preferential Street is defined as an important street for transit operations where interference with transit vehicles by other traffic should be minimized.

Irving Street/Carl Street is an east-west collector street north of Parnassus Avenue, and provides another access to the Millberry Union public parking garage at Second Avenue and Irving Street and to the Ambulatory Care Center permit parking garage at Arguello Boulevard and Irving Street. East of Arguello Boulevard, Irving Street becomes Carl Street and provides access to Stanyan Street and US 101 via Oak and Fell Streets. Although Irving Street is wider than Carl Street, both generally provide one parking lane in each direction. East of 19th Avenue, Irving Street carries an ADT of 8,700 vehicles, and operates at LOS D. The *San Francisco Master Plan* classifies Irving and Carl Streets between Seventh Avenue and Clayton Street as Transit Preferential Streets. The N-Judah MUNI Metro light rail line operates on Carl Street and Irving Street from downtown San Francisco and the Sunset Tunnel to Ninth Avenue, before turning onto Judah Street and continuing to 48th Avenue.

Seventh Avenue is one of two major north-south arterials in the area and provides access to I-280 via Seventh Avenue, Laguna Honda Boulevard, Woodside Avenue, O'Shaughnessy Boulevard and Bosworth Street. To the north, Seventh Avenue provides access to roadways in Golden Gate Park. Near the campus, Seventh Avenue has one parking lane in each direction, carries an ADT of 18,100 vehicles, and operates at LOS F. The *San Francisco Master Plan* classifies Seventh Avenue between Irving and Lawton Streets as a Transit Preferential Street.



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA and HGHB, UCSF LRDP—Existing Conditions Report, September 1992.

LEGEND

- 44 Muni Bus Route
- N Muni Light Rail

Stanyan Street is the second major north-south arterial near the Parnassus Heights site, and provides access north of the site to the Fell-Oak Street one-way couplet and US 101. It also forms the eastern boundary of Golden Gate Park and is an alternate north-south route towards Golden Gate Bridge. Stanyan has one parking lane in each direction near Golden Gate Park. South of Geary Boulevard, Stanyan Street carries an ADT of 20,700 vehicles, and operates at LOS D. The *San Francisco Master Plan* classifies Stanyan Street between Frederick and Haight Streets as a Transit Preferential Street.

Lincoln Way is a major east-west collector to the north of Parnassus Avenue. In addition to providing an east-west alternative to Parnassus Avenue and Irving Street, Lincoln Way is the southern perimeter roadway of Golden Gate Park, with one parking lane per direction. Based on the limited number of stop signs, signalized intersections and north-south cross streets, Lincoln Way is used primarily by through traffic. Lincoln Way connects with the Fell-Oak Street one-way couplet via Kezar Drive in Golden Gate Park. The *San Francisco Master Plan* classifies Lincoln Way between Seventh Avenue and Stanyan Street as a Secondary Thoroughfare; that is, a collector for major thoroughfares that functions primarily as an intra-district route. Secondary Thoroughfares sometimes complement Major Thoroughfares. West of Seventh Avenue, Lincoln Way is classified as a Major Thoroughfare, carries an ADT of 40,400 vehicles and operates at LOS F.

Frederick Street is an east-west collector that serves the residential areas to the east of the Parnassus Heights site, from Masonic Avenue to Arguello Boulevard and Lincoln Way. Frederick Street east of Stanyan Street carries an ADT of 12,000 vehicles and operates at LOS E.

Third Avenue is a local residential street on the west side of the Parnassus Heights site, from Parnassus Avenue to Lincoln Way. Metered parking is allowed on the east side from Parnassus Avenue to Irving Street. From Irving Street to Lincoln Way, residential permit parking is posted on both sides of the street. This street carries an ADT of 1,400 vehicles and operates at LOS C.

Fell and Oak Streets form a one-way arterial couplet northeast of Parnassus Heights that carry traffic to and from US 101. Fell Street (westbound) carries an ADT of 42,600 vehicles, and operates at LOS F. Oak Street (eastbound) has an ADT of 46,600 vehicles at Masonic Avenue and operates at LOS F.

Kezar Drive is an east-west collector street north of Parnassus Avenue that provides the major connection from the Parnassus Heights site to the Fell-Oak Street one-way couplet. Kezar Drive accommodates approximately 160 restricted parking spaces. Kezar Drive carries an ADT of 49,100 vehicles and operates at LOS F.

Clarendon Avenue is a two- to four-lane arterial generally serving east-west traffic on the south side of the Parnassus Heights site between Twin Peaks Boulevard and Laguna Honda Boulevard. Parking on Clarendon Avenue is unrestricted and is used by UCSF employees for parking.

c. Public Transit

Public transit service to the Parnassus Heights site is provided by the San Francisco Municipal Railway (MUNI). Figure 4C-1 shows the MUNI routes which serve the Parnassus Heights area. These routes provide direct service via buses, light rail lines and trolley buses to downtown San Francisco and to neighborhoods to the west in the Sunset District. North-south cross-town routes connect the Parnassus Heights site with Haight-Ashbury, Pacific Heights and the Presidio, as well as neighborhoods to the south. Connections with other operators are provided from downtown San Francisco. These include BART (to Alameda and Contra Costa Counties), CalTrain (to San Mateo and Santa Clara County), SamTrans (to San Mateo County), AC Transit (to Alameda County) and Golden Gate Transit (to Marin and Sonoma Counties).

The following MUNI transit lines serve the Parnassus Heights area:

The 6-Parnassus operates between the Transbay Terminal, Market Street, Haight-Ashbury, Parnassus Avenue, Inner Sunset and the West of Twin Peaks areas. On Market Street, the route provides access to MUNI Metro/BART, AC Transit, Golden Gate Transit and SamTrans bus routes at the Transbay Terminal. Connections with the CalTrain station in San Francisco require an additional bus transfer.

The 43-Masonic is a cross-town route which operates between the Marina District, the Presidio, Pacific Heights, Haight-Ashbury, Parnassus Heights, Forest Hill MUNI station, St. Francis Wood and the Balboa Park MUNI Metro and BART station. The 43-Masonic bus also provides connections with Golden Gate Transit at Geary Boulevard and Presidio Avenue, and at Lombard and Fillmore Streets. The 43 route has stops at Parnassus Heights and at UCSF's Laurel Heights site.

The 66-Quintara operates between the Outer Sunset and Parnassus Heights. Some peak-hour runs are extended to and from downtown.

The 71-Haight-Noriega line operates between Market Street, Haight Street, Lincoln Way to 21st Avenue and Noriega Street.

The 44-O'Shaughnessy operates between Bayview/Hunters Point and the Presidio along Silver Avenue and Alemany Boulevard to the Glen Park BART station, Forest Hill MUNI Metro station to Ninth Avenue, Golden Gate Park and Sixth Avenue to California Street.

The N-Judah MUNI Metro light rail line operates between Market Street, the Sunset Tunnel, Carl Street and Irving Street near the Parnassus Heights site, and Judah Street to 48th Avenue.

UCSF Transportation Services

As part of its Transportation Demand Management (TDM) Plan, the UCSF Office of Transportation Services provides the following:

- Shuttle service among UCSF sites (via the UCSF-SFGH-Mount Zion Shuttle) and Parnassus Heights from student housing located on the Aldea parcel of the Parnassus Heights site to Laguna Honda School on Sixth Avenue;
- Jitney service to the UC Berkeley Campus; and
- UCSF-sponsored vanpool program in addition to efforts of personal ridematching for commuters by RIDES for Bay Area Commuters, Inc.

In addition, the Marin Commute Club is a UCSF employee-operated bus service to the Parnassus Heights site.

d. Parking

On-street and off-street parking in the Parnassus Heights area is in high demand. Local residents, workers and visitors to the area compete for on- and off-street parking spaces. UCSF employees and visitors use available on-site parking facilities and nearby lots within a few blocks of the Parnassus Heights site. A variety of parking regulations, including residential permit with two-hour parking for non-site residents, metered parking and unlimited parking, apply to the available on-street parking supply along local streets. Observations indicate that overall peak parking demand approaches the capacity of available on-street parking supply in the Parnassus Heights area. (Capacity equals 95 percent of supply.)

On-Site Parking

Parnassus Heights has several major parking facilities, providing a total of 2,778 spaces, about half of which is permit-only staff parking. The Millberry Union garage, which provides about 827 public spaces, can be reached from Parnassus Avenue or Irving Street, the Ambulatory Care Center garage provides about 1,135 permit-only spaces and the Westside Lot (at Kirkham and Fourth Avenues) provides 166 permit spaces. The remaining parking is provided by 12 smaller lots around Parnassus Heights site.

The demand for on-site parking is heavy, with the Millberry Union garage operating near capacity (85 percent to 95 percent) during peak parking periods. Surveys in May 1994 indicated that the Ambulatory Care Center and Westside parking fill to 86 and 99 percent occupancy, respectively, during peak hours. These garages provide parking in the evening for residents, and for visitors to Golden Gate park on weekends.

Off-Site Parking

The largest non-UCSF parking facilities in the Parnassus Heights vicinity are at 350 Parnassus Avenue and at the city-operated Kezar Lot at Stanyan and Frederick Streets (City Kezar Lot). The parking garage at 350 Parnassus Avenue contains about 200 spaces. No occupancy data

is available for the private 350 Parnassus Avenue garage. UCSF does not rely on this space to meet campus demand. The City's Kezar Lot contains 340 spaces with a reported peak-hour occupancy of about 90 percent.⁴

On-street parking in the neighborhoods immediately north, east, and west of the Parnassus Heights site is partially controlled by residential permits. A recent survey of more than 1,840 on-street parking spaces in the vicinity of the Parnassus Heights site shows that 52 percent of on-street unmetered parking spaces do not have time limits, 43 percent are residential permit parking with two-hour limits for non-permit vehicles, and 5 percent are metered parking.⁵ The parking survey is included in Appendix 3. Parking observation areas included portions of Parnassus Avenue, Second, Third, Fourth, Sixth, Eighth and Ninth Avenues, Martin Luther King, Jr. Drive, Kezar Drive, Frederick Street, Clarendon Avenue, Shrader Street and Clayton Street. On-street parking near the Parnassus Heights site was at 94 percent occupancy in the am peak hour and at 89 percent occupancy in the midday peak hour during recent surveys.

The 1985 San Francisco *Neighborhood Parking Plan*, prepared by Department of City Planning, reported an on-street parking occupancy in the Parnassus Heights area in excess of 100 percent, with illegal parking occurring.⁶ This was prior to institution of residential permit zones in the area. Recent parking occupancy data indicates that parking demand in the Parnassus Heights vicinity has decreased slightly since 1985 as a result of the residential parking permit zones, but that parking is still effectively fully occupied in the morning peak hour (94 percent between 7:30 and 8:30 am) and near fully occupied in the afternoon peak hour (89 percent between 2:00 and 3:00 pm). The 95 percent occupancy is considered fully saturated because some vacancy is required for maneuvering and circulating.

About five percent of the total parking spaces in the area are metered. Those metered spaces, which are primarily located in the Irving Street/19th Avenue commercial area or adjacent to the Parnassus Heights site, were observed to be 95 percent or more occupied. In addition to the passenger-car metered spaces, there are 24 ten-hour meters for motorcycles on Irving Street near Second Avenue. These spaces were observed to be 92 percent occupied in the morning peak hour and 100 percent occupied in the afternoon peak hour.

Residential permit parking spaces in neighborhoods surrounding the Parnassus Heights site were observed to be fully occupied in the morning peak hour (95 percent occupied) and less occupied in the afternoon (85 percent occupied). Demand for these spaces appears to be greatest in the early morning periods, as UCSF students and patients seek parking in the residential areas before local residents have departed for work. Random interviews of people parking between 10:30 and 11:30 am indicate that about 80 percent of people parking during this time interval are related to UCSF uses.⁷

On-street parking spaces with no time limits or meters are generally located three or more blocks from the Parnassus Heights site in the Inner Sunset, along Clarendon Avenue and in Golden Gate Park. This parking is about 93 percent occupied in the morning peak hour and 92 percent occupied in the afternoon peak hour.

Two approved projects would affect the parking supply in the Parnassus Heights area and one additional project may affect parking supply:

- The MUNI Metro Keystop handicapped-accessible platforms planned on Irving Street between Second and Third Avenues will result in the loss of 11 automobile metered parking spaces. In addition, 24 motorcycle metered parking spaces will be lost.
- The proposed “tow-away, right-lane must turn” configuration on Irving Street between Second and Third Avenues would result in the loss of six metered parking spaces. MUNI is discussing the possibility of providing more parking on the north side of Irving Street east of Second Avenue with the San Francisco Department of Parking and Traffic to offset partially this parking loss.
- The Golden Gate Park Master Plan, currently being developed, may propose parking restrictions in the southeast area of Golden Gate Park. Both Martin Luther King, Jr. Drive and Kezar Drive are used by all-day parkers. Parking restrictions on these streets may be recommended in the Master Plan. If such restrictions were implemented, it would reduce the on-street parking supply in the Parnassus Heights vicinity and increase demand for parking in the surrounding neighborhoods. It is likely that current UCSF-related parkers on these streets would seek parking in other unrestricted areas, such as portions of Ninth Avenue and Clarendon Avenue.

e. Pedestrian And Bicycle Circulation

The Parnassus Heights site generates substantial pedestrian traffic on Parnassus Avenue and its crosswalks, particularly between the Millberry Union parking garages and the Long/Moffit Hospitals. The eastern Parnassus Avenue crosswalk directly serves the parking garage elevator banks and the hospital entrance. Groups of up to 25 persons queue at the curb, and pedestrians were observed to cross outside of the crosswalk to avoid delays resulting from dense flow.⁸ Crossings against red signals occur frequently.

Bicycle use in the Parnassus Heights area appears substantial, despite hilly streets and lack of secure bicycle parking. There are no bicycle lanes on streets surrounding the Parnassus Heights site. Frederick Street is a Class III bicycle route (signed, but no special bicycle lanes). Bicycle paths and bicycle racks are provided at various locations on the site.

f. Site-Specific Standards and Methods

Analysis Description

The corridor-level LOS methodology is consistent with the traffic and circulation analysis used in this EIR for the potential Major New Sites. The transportation impact analysis for Parnassus Heights considers the projected transportation changes at the site at full buildout under the LRDP. This includes a projected reduction in employees and an increase in the number of out-patients and visitors. The transportation impact analysis compares the level

of daily, am and pm peak-hour traffic for streets in the immediate vicinity of the Parnassus Heights site using the corridor-level methodology, supplemented with intersection analysis, as described previously. The LOS analysis is presented for existing 1995 conditions, future 2010 conditions without the LRDP, and future 2010 conditions with the LRDP. A 2010 forecast year was selected to analyze the traffic impacts of the LRDP because full implementation of the LRDP is not expected until the end of the LRDP planning period. Future traffic conditions incorporate a one percent per year growth rate over the next 15 years, based on factors typically used in the City of San Francisco. This assumes increased traffic resulting from changes in land use, visitor population and through-traffic. This growth assumption likely overstates future traffic growth in the Parnassus Heights area because it is already built out and zoning changes allowing higher density development are unlikely. Because the 15 percent growth factor would account for traffic generated under the LRDP, the future 2010 without LRDP traffic volumes were estimated by subtracting LRDP-related trips at Parnassus Heights from total projected future traffic volumes. The trip generation summary discussed below projects the net new daily person-trip generation at Parnassus Heights under the LRDP. The City and County of San Francisco considers a significant traffic impact as a worsening in traffic conditions to lower than LOS D.

Cumulative Baseline Analysis (Year 2010 With LRDP)

Trip Generation

On the basis of the assumptions outlined above, implementation of the LRDP at Parnassus Heights would generate an estimated 1,015 net new person trips per day and about 823 net new vehicle trips at full build out (see Tables 4-1 and 4-2). During the am peak hour, LRDP activities at Parnassus Heights would generate about 110 net new vehicle trips, and during the pm peak hour, LRDP activities would generate about 90 net new trips (see Table 4-3). The daily trip generation, peak-hour percentages and mode split rates were derived based on person-trips and existing mode splits at the Parnassus Heights site.⁹ These trip generation figures would account for traffic generation changes related to the proposed demolition of the Aldea Family Student Housing, the MR IV and UC Hall buildings and construction of new buildings on those sites under the LRDP, as well as the proposed building demolition and building conversions to housing. The net effect of these demolition and construction projects would be a reduction in traffic to and from Parnassus Heights generated by UCSF users of these replacement buildings. This is reflected in Table 4-1 by the reduction in faculty, researchers and staff at Parnassus Heights. In addition, because the replacement structures would be built on or near the existing building sites, there would not be any changes in trip distribution or local traffic patterns associated with the users of those buildings.

The peak-hour percentages assumed for 1996 LRDP-related traffic at Parnassus Heights use conservative assumptions and may overstate project impacts. The peak-hour percentages were derived from survey data for all users at the Parnassus Heights site. The types of users projected to increase at Parnassus Heights with implementation of the LRDP, out-patients and visitors, are likely to travel predominantly during off-peak periods and would be expected to have peak-hour percentages below ten percent. In addition, the pm peak hour for traffic generated at the Parnassus Heights site is 2:00 to 3:00 pm. During this time, traffic volumes

TABLE 4-1: PARNASSUS HEIGHTS
Net New Daily Person Trip Generation Calculations

UCSF Population Category	Average Weekday Population			Weekday Person Trips			
	User Population ¹	Absentees ² (11%)	Average Weekday Population	Trips Ends Per User ³	Total Trips	Internal Trips ⁴	Net External Trips
Faculty and Professional Researchers	(192)	(21)	(171)	2.23	(381)	(38)	(343)
Staff	(234)	(26)	(208)	2.23	(464)	(46)	(418)
Students	0	0	0	0	0	0	0
Patients	555	N/A	555	2.00	1,110	0	1,110
Visitors	<u>370</u>	<u>N/A</u>	<u>370</u>	2.00	<u>740</u>	<u>74</u>	<u>666</u>
Total	499	47	546		1,005	(11)	1,015

Notes:

1. User population was provided by EIP Associates in a memorandum dated December 19, 1995, and is based on LRDP population estimates.
2. Wilbur Smith Associates, *UCSF LRDP Parking Demand Estimates*, February 22, 1994, based on historical data gathered at UCSF sites.
3. Trip ends per user are based on the 1982 *UCSF LRDP EIR* for faculty, professional researchers, employees and students. Patients, visitors and vendors are assumed to have two trip ends per user (one inbound and one outbound).
4. Assumes ten percent internal trips for faculty, researchers and employees. This is a conservative assumption.

TABLE 4-2: PARNASSUS HEIGHTS

Net New Person Trip Generation By Mode

Projected Mode Splits																			
UCSF Population Category	Drive Alone		Drop - Off		Carpool		Vanpool		MUNI		Other Transit		Bicycle/ Motorcycle		Walk		Total		Daily Vehicle Trips ¹
	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	
Faculty and Professional Researchers ²	41	(139)	6	(21)	9	(31)	9	(31)	21	(72)	5	(17)	2	(7)	7	(24)	100	(343)	(200)
Staff ³	41	(171)	6	(25)	9	(38)	9	(38)	21	(88)	5	(21)	2	(8)	7	(29)	100	(418)	(246)
Students	29	0	5	0	2	0	7	0	31	0	1	0	4	0	36	0	100	0	0
Patients	34	377	16	178	5	56	2	17	35	389	4	44	1	6	4	44	100	1,110	763
Visitors	46	306	14	93	3	20	2	13	21	140	1	7	1	7	12	80	100	666	500
Vendors/ Service	65	0	4	0	1	0	7	0	4	0	0	0	4	0	10	0	100	0	0
Total		373		225		7		(39)		368		13		(3)		71		1,015	823

Notes:

1. Vehicle trips are calculated based on the following formula: drive alone trips + (drop-off trips x 2) + (carpool trips/2) + (vanpool trips/10) + (motorcycle/bike trips/4)
2. Numbers in parentheses are credited from total daily vehicle trips.
3. UCSF estimates for visitors, vendors and service population data were doubled to be conservative.

Source: Wilbur Smith Associates, *Journey to Campus Data Analysis*, September 1991, for mode split data, applied to projected change in trip generation by population category.

TABLE 4-3: PARNASSUS HEIGHTS
Net New Daily Vehicle Trip Generation

UCSF Population Category ¹	Average Weekday	AM Peak Hour			PM Peak Hour		
		Inbound	Outbound	Total	Inbound	Outbound	Total
Peak-Hour Percentages ²		11.8	1.4	13.2	3.6	6.8	10.4
Faculty and Professional Researchers	(200)	(24)	(3)	(27)	(7)	(14)	(21)
Staff	(246)	(29)	(3)	(32)	(9)	(17)	(26)
Students	0	0	0	0	0	0	0
Patients	763	90	11	101	27	52	79
Visitors	506	60	7	67	18	34	53
Vendors/Service	0	0	0	0	0	0	0
Total	823	97	12	109	30	56	86

Notes:

1. EIP Associates, December 19, 1995 memo.
2. Wilbur Smith Associates, *UCSF LRDP Journey to Campus Data Analysis*, August 1992. Peak-hour percentages reflect all population categories and likely overstate peak-hour impacts associated with patients and visitors, who tend to arrive and depart during off-peak periods. The pm peak-hour percentages represent the UCSF peak (2:00 to 3:00 pm). During the background traffic peak hour (5:00 to 6:00 pm) UCSF traffic contributions would be considerably lower, but this analysis evaluates a worst-case scenario.

(xxx): Number in parentheses indicates decrease in vehicle trips associated with implementation of the LRDP.

on roadways surrounding the site are lower than during their peak-hour volumes (between 5:00 and 6:00 pm). To evaluate conservative conditions, UCSF peak-hour traffic (2:00 - 3:00 pm) was added to the peak-hour of traffic on the surrounding streets (5:00 - 6:00 pm), despite the different time periods.

Trip Distribution

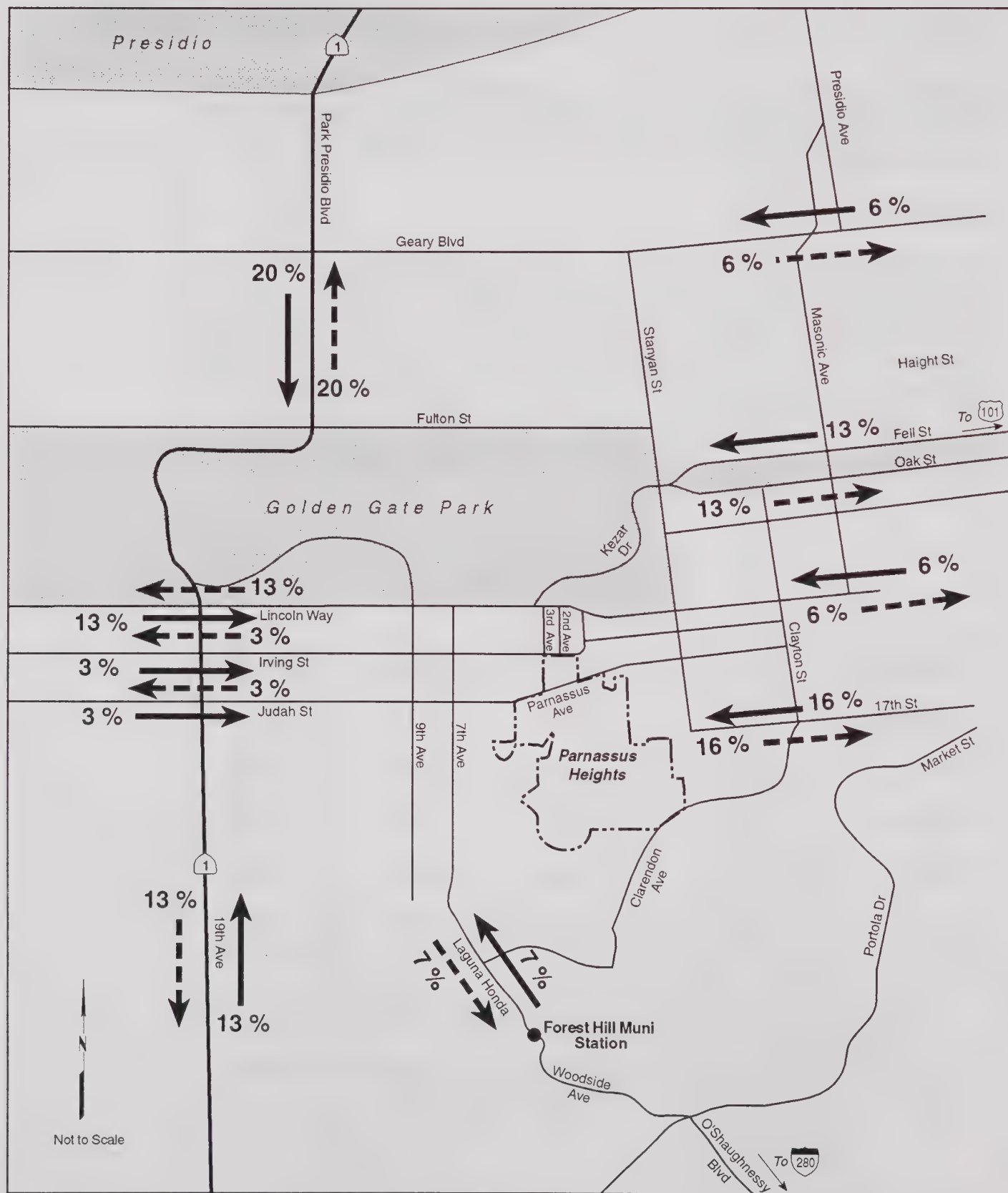
The distribution of new Parnassus Heights-generated traffic is based on the UCSF Journey to Campus Data Analysis, as shown in Table 4-4 and Figure 4-2. The arrows shown in Figure 4-2 represent general directions of travel and do not reflect traffic volume assignments to individual streets. As an example, six percent of the traffic is projected to go east; Figure 4-2 shows this with arrows adjacent to Frederick Street. In fact, only a portion of this traffic is assigned to Frederick Street and other trips are assigned to Haight and Waller Streets. The net new traffic was assigned to the street network based on the regional destinations, the location of on- and off-street parking in the Parnassus Heights vicinity, and projected future traffic conditions. Vehicles were assumed to take the travel route requiring the least travel time from origin to destination.

TABLE 4-4: PARNASSUS HEIGHTS
Trip Distribution

Location	Employees ¹	Patients ²	Visitors ²	Total
San Francisco	56.0%	59.4%	56.0%	57.6%
East Bay	15.0%	18.3%	16.7%	17.0%
South Bay	15.0%	14.0%	14.8%	14.5%
North Bay	14.0%	8.3%	12.5%	10.9%
Total	100%	100%	100%	100%

Notes:

1. Trip distribution percentages include staff, faculty and professional teachers. Trip distribution is based on the *UCSF LRDP Journey to Campus Data Analysis*, Wilbur Smith Associates, September 1991.
2. Trip distribution is based on the *UCSF LRDP Journey to Campus Data Analysis* (Patients, Visitors, Students, Vendors), Wilbur Smith Associates, August 1992.



LEGEND

- > Inbound Traffic
- > Outbound Traffic

Notes: 1. Percents indicate the percentage of project trips assigned to various directions. Percents are not necessarily representative of the amount of traffic assigned to individual streets, but rather to directions of travel.

2. Not all streets in study area shown.

2. IMPACTS AND MITIGATION MEASURES

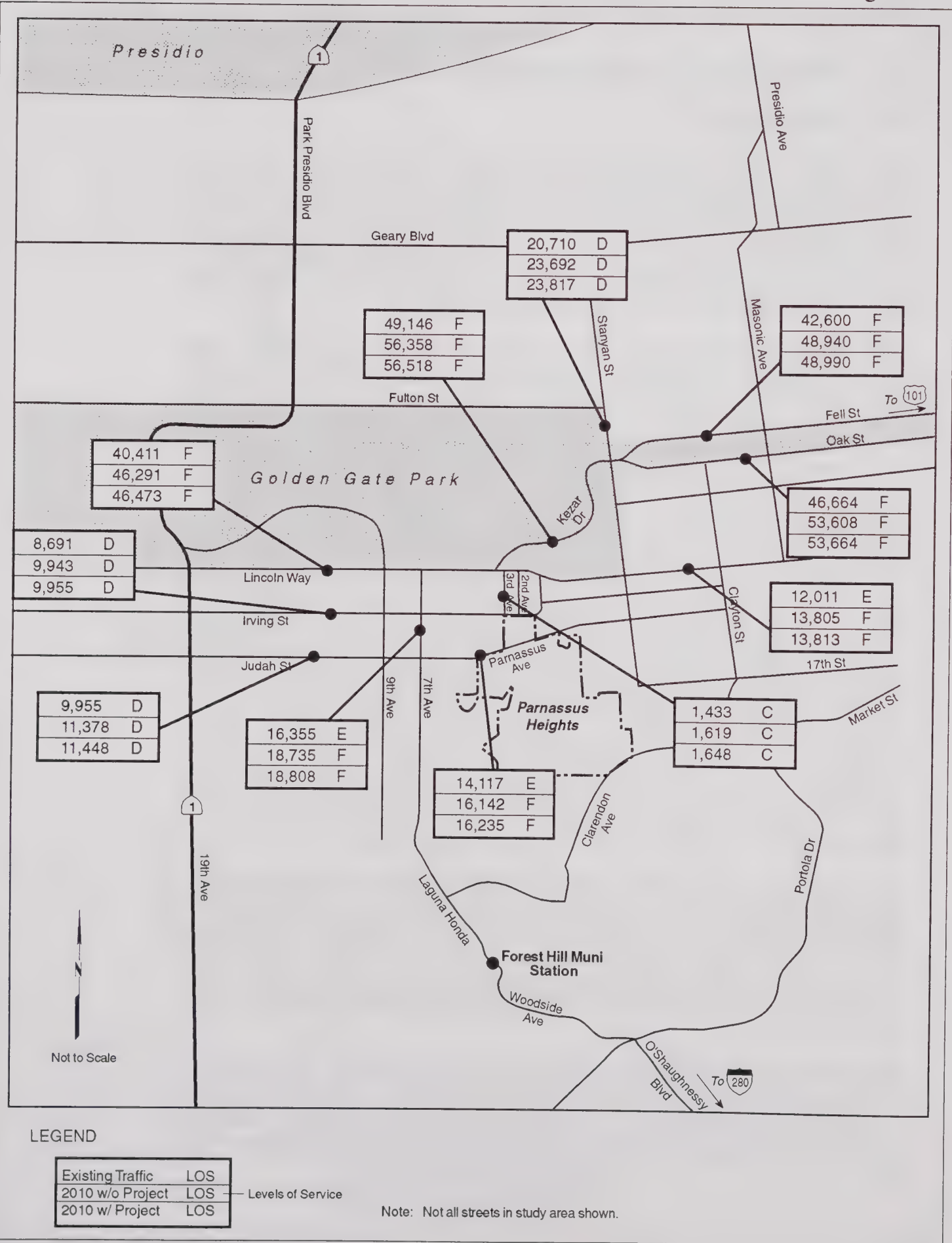
a. Vehicular Traffic

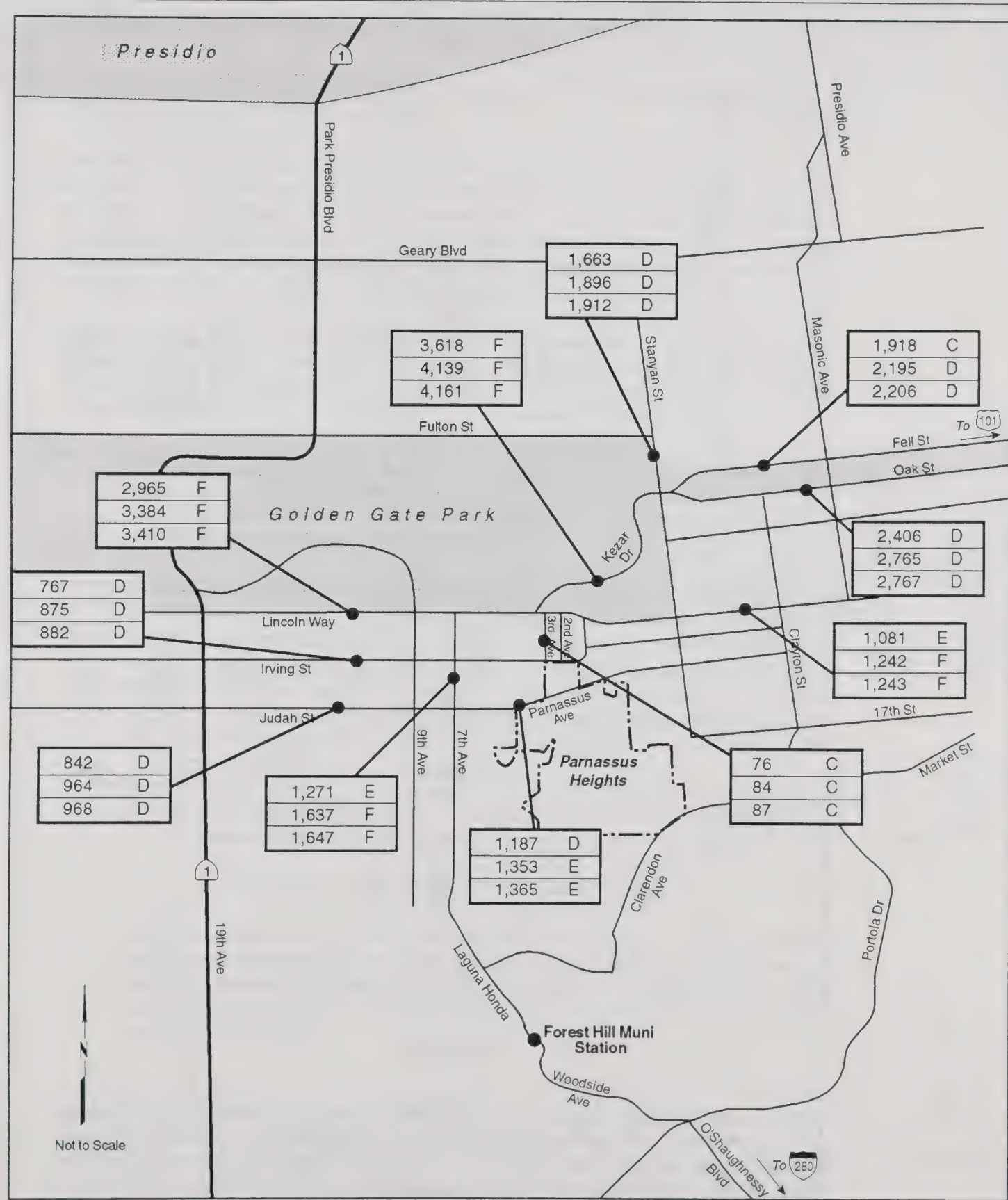
On the basis of the trip generation and distribution assumptions discussion above, implementation of the LRDP would change daily transportation demand in the vicinity of the Parnassus Heights site. The decrease in UCSF employee-generated daily and peak-hour traffic under the LRDP would be offset by an increase in overall daily and peak-hour traffic resulting from increased numbers of visitors and patients at Parnassus Heights. However, this new transportation demand resulting from LRDP activities at Parnassus Heights would be spread throughout the day, rather than primarily in peak hours.

Year 2010 daily and peak-hour volumes, capacities and levels of service for the study corridors without the 1996 LRDP activities at Parnassus Heights, and 2010 daily and peak-hour volumes, capacities and levels of service for the study corridors with the 1996 LRDP activities are presented in Tables A-3-8 and A-3-9, respectively, in Appendix 3. Figures 4-3, 4-4 and 4-5 compare existing and year 2010 traffic volumes and levels of service for daily, am, and pm traffic conditions, respectively. In year 2010, without LRDP activities, the following corridors would experience worsened peak hour LOS from 1995 conditions: Parnassus Avenue near Fifth Avenue, from LOS D to LOS E (am), and from LOS D to LOS F (pm); Frederick Street west of Clayton Street, LOS E to LOS F (am and pm); Fell Street west of Masonic Avenue, LOS C to LOS D (am); and Seventh Avenue near Judah Street, LOS E to LOS F (am). All other corridors would be projected to have the same LOS in 2010 as in 1995. As shown in Figures 4-3, 4-4 and 4-5, LRDP activities at Parnassus Heights would not change year 2010 LOS conditions at any study corridor. At two corridors, the LRDP-related traffic would worsen volume/capacity (v/c) ratios by about .01. Those corridors, discussed below, are Lincoln Way east of 19th Avenue and Seventh Avenue south of Lincoln Way. Each would be projected to operate at LOS F in 2010 without LRDP-related activities. LRDP-related traffic in the Parnassus Heights vicinity would not result in deterioration of v/c ratios on any other study corridors. As described above, the corridor analysis for the Parnassus Heights site has been supplemented with intersection analysis at ten key intersections. Intersection analysis verifies corridor LOS F conditions under year 2010 conditions. In addition, intersection analysis at Seventh Avenue at Lincoln Way and Seventh Avenue at Judah Street confirm LRDP-related impacts at these locations.

Impact 4C-1. Lincoln Way and Seventh Avenue V/C Ratio Deterioration (Project/Significant). In 2010, Lincoln Way east of 19th Avenue and Seventh Avenue south of Lincoln Way would operate at LOS F without LRDP implementation. UCSF traffic generated by full implementation of the 1996 LRDP at Parnassus Heights would result in a further deterioration of those corridors' v/c ratios by 0.01 for an average weekday and for the am and pm peak hours. This v/c ratio deterioration would be a significant impact.

The 1996 LRDP activities at Parnassus Heights would add about 182 daily, 26 am peak hour and 18 pm peak hour vehicle trips to Lincoln Way east of 19th Avenue. This would represent an estimated 0.4 percent increase in traffic on this corridor and would result in a change in v/c ratio of about 0.01. Traffic generated by LRDP activities at Parnassus Heights would affect a



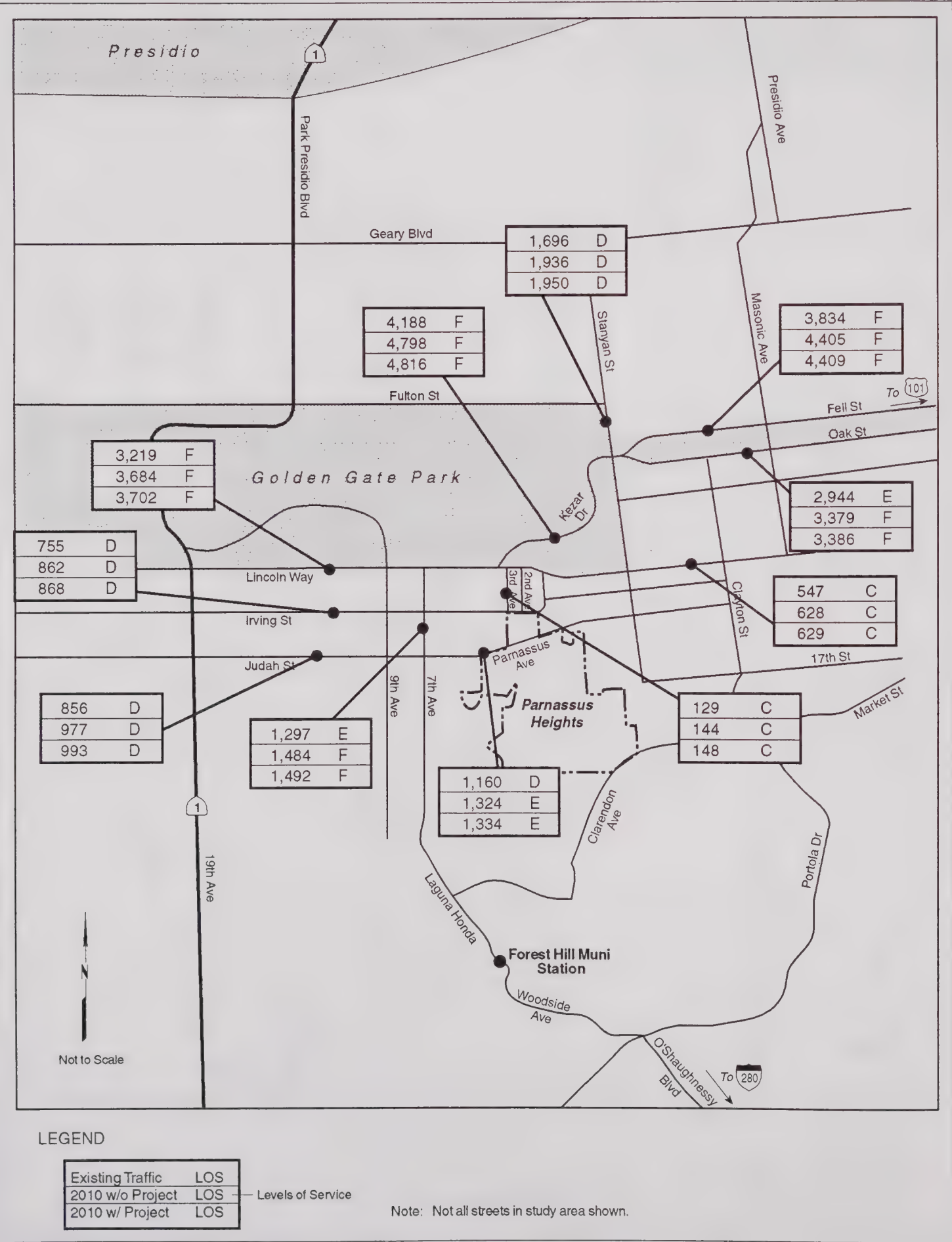


LEGEND

Existing Traffic	LOS
2010 w/o Project	LOS
2010 w/ Project	LOS

Levels of Service

Note: Not all streets in study area shown.



Source: Fehr & Peers Associates, Inc. Transportation Consultants, 1996.

corridor already operating over capacity under existing conditions and projected to be about 40 percent over capacity by the year 2010.

The 1996 LRDP activities at Parnassus Heights would add about 73 daily, 10:00 am peak hour and 8:00 pm peak-hour vehicle trips to Seventh Avenue south of Lincoln Way. This would represent an estimated 0.4 percent increase in traffic on this corridor and would result in a change in v/c ratio of about 0.01. Traffic generated by LRDP activities at Parnassus Heights would affect a corridor already operating over capacity under existing conditions and projected to be operating about 24 percent over capacity by the year 2010.

As noted above, the 15 percent total traffic growth assumed to occur for this EIR analysis between 1995 and 2010 in the Parnassus Heights area may overstate these traffic impacts. However, they are nonetheless treated as significant for purposes of this EIR to provide a conservative analysis.

Mitigation Measure 4C-1. Transportation Demand Management (TDM) Expansion (Significant/Unavoidable). TDM programs implemented by UCSF could reduce the number of daily am and pm peak-hour vehicle trips generated at Parnassus Heights by 1996 LRDP activities.

The LRDP would generate increased trips from out-patients and visitors, populations which have not been heavily targeted by existing TDM programs at Parnassus Heights. TDM measures focused on these user groups may be particularly effective to offset the impacts of the 1996 LRDP. To reduce this impact to a level of insignificance, TDM measures would need to result in an estimated six percent mode shift of total UCSF-related trips from the Parnassus Heights site from auto usage. The LRDP proposals for the Parnassus Heights site include the following TDM-related measures such as:

- investigate shuttle connections to the Glen Park BART station, and additional vanpools and commuter buses to help reduce parking demand; and
- investigate transit pass subsidies for all employees.

In addition, UCSF could include expanded UCSF shuttles from other UCSF sites and could provide transit and shuttle information by phone or mail as part of visitor/out-patient appointment confirmation. Despite the success of the current TDM programs this magnitude of shift in mode is unlikely to occur during the LRDP period, making the impact unavoidable.

Impact 4C-2. Parnassus Avenue, Frederick Street, Fell and Oak Streets and Kezar Street (Project/Less Than Significant). In 2010, the following corridors would operate at LOS F: Parnassus Avenue east of Fifth Avenue; Frederick Street west of Masonic Avenue; Fell and Oak Streets east of Stanyan Street; and Kezar Drive west of Waller Street. Activities associated with the 1996 LRDP would not result in any further LOS or v/c ratio deterioration of these corridors. Impacts associated with the LRDP activities at Parnassus Heights would be less than significant.

While LRDP activities would contribute new traffic to each of these corridors, the increased traffic would not result in the deterioration of the corridor v/c ratios or any change in LOS, and therefore this impact would be less than significant.

Mitigation Measure 4C-2. (Less Than Significant). None required.

Impact 4C-3. Construction Traffic (Construction/Significant). Construction activities associated with LRDP implementation at the Parnassus Heights site could increase construction employee automobile trips, construction truck traffic and construction parking demand. Demolition and construction at the UC Hall site could also require sidewalk and lane closures on Parnassus Avenue, as well as disrupting parking and circulation on that street. Those effects could worsen traffic conditions and reduce parking availability during construction periods. This would be a temporary but significant impact.

Implementation of the LRDP at the Parnassus Heights site would include demolition and new construction at such sites as the Aldea Family Student Housing, UC Hall and MR IV buildings. Those development activities would increase the construction employee traffic and parking demand, and related truck traffic. Demolition of UC Hall and construction of a new building on that site could require sidewalk and curb lane closure on that frontage of Parnassus Avenue. Also, staging of vehicles and construction materials would require temporary closure of on- and off-street parking near the construction sites. Temporary removal of permit spaces in the westside parking lot for staging at the MR IV construction site could reduce off-street staff parking.

The limited availability of long-term parking around Parnassus Heights would likely encourage some construction workers to use public transit or other transportation modes to Parnassus Heights. However, a majority of construction workers would be expected to drive alone to Parnassus Heights construction sites. Those who drive alone would not appreciably worsen traffic conditions on road corridors in the vicinity because the likely peak morning and afternoon hours for construction workers would be before the morning peak traffic hour, from 7:30 to 8:30 am, and mostly, before the afternoon peak hour. Construction workers driving alone or carpooling to the Parnassus Heights site would increase parking demand by using parking spaces in UCSF garages or using on-street curbside parking that might otherwise be available to UCSF users. This increase could exceed available supply of parking spaces.

Other construction traffic would include trucks, some of which would likely be heavy trucks with long wheelbases. These vehicles typically move slower than the normal flow of traffic and could impede circulation for short periods while they travel to and from construction sites at UCSF and perform certain maneuvers such as turning and reversing movements.

Demolition and construction activities at the Aldea Family Student housing and MR IV sites would not require any lane or sidewalk closures. Construction truck traffic would be required and could temporarily affect traffic circulation at Parnassus Heights. Access to UC Hall for demolition activities could be from the south side, within the site, depending upon the timing

of other LRDP activities. This would avoid disruption of Parnassus Avenue. If access to UC Hall from the south were not feasible, demolition and construction activities at UC Hall could require closure of the south sidewalk and one curb lane of Parnassus Avenue along the UC Hall frontage, which would divert pedestrians to the north sidewalk. A lane closure would limit the capacity of Parnassus Avenue and create delays for vehicles and MUNI vehicles. Therefore, construction activities would have temporary but significant impacts on traffic and parking.

Mitigation Measure 4C-3. (Less Than Significant). To assure that construction activities minimize parking demand and circulation obstruction, UCSF would require construction contractors to implement measures to provide off-site parking for construction employees, limit truck activities to certain hours and provide flagging or other traffic control as necessary.

UCSF would require construction contractors to develop and implement construction traffic and parking management plans during demolition and construction activities at the Parnassus Heights site. The plan could include measures such as:

- Prepare an off-site parking plan for construction employees and subcontractor employees. This plan would be incorporated into the construction contract between UCSF and the contractor.
- Schedule all heavy-truck deliveries with the construction project manager at least one day in advance.
- Whenever possible, make deliveries using trucks of 40 feet or less.
- Whenever possible, schedule all heavy truck deliveries to arrive at off-peak hours, outside of 7:30 to 8:30 am and of 4:45 to 5:45 pm.
- Note any deliveries that cannot comply with the above requirements for heavy trucks on the schedule and notify the UCSF construction project manager at least 48 hours in advance. The contractor may provide flagmen to direct traffic in those cases.
- Develop a traffic management plan in consultation with the San Francisco Department of Parking and Traffic and MUNI to minimize disruption from potential lane closures. The plan could include signage, flagmen, and temporary relocation of MUNI stops.

b. Public Transit

The effects of LRDP activities on transit service in the vicinity of the Parnassus Heights site were evaluated for projected peak-hour transit-route corridor load factors for 2010 conditions with and without the LRDP. Load factor is a measure of the average transit vehicle occupancy as a ratio of total passengers to total vehicle capacity (seated and standing) and is the standard by which MUNI determines the maximum passenger-carrying capacity per

vehicle during peak and off-peak demand periods. As a stated policy, MUNI responds to new transit demand and adjusts service to maintain peak and off-peak vehicle load factor objectives. In general, MUNI's objective is to achieve a load factor of 1.00 or lower.

The current maximum peak-period capacity factors for various MUNI vehicles are: 45 passengers per 30-foot motor coach; 63 passengers per 40-foot motor coach or 40-foot trolley coach; 94 passengers per 60-foot articulated motor coach; and 119 passengers per light rail vehicle. Under existing conditions, the average combined ridership for all five transit lines serving the Parnassus Heights site is 86 passengers per peak-hour vehicle. The combined corridor capacity is about 93 passengers per vehicle, with the five transit lines currently operating with an overall corridor load factor of 0.92. Individual transit runs could experience higher or lower load factors and could experience over-capacity conditions (i.e., load factors greater than 1.00) during peak hours.

Impact 4C-4. MUNI Route Loading (Project/Significant). Future transit demands associated with LRDP activities at Parnassus Heights would exceed current corridor capacity by about four percent. LRDP activities at Parnassus Heights in 2010 would generate approximately 368 net new transit trips per day and about 49 net new transit trips during the am peak hour and 38 trips during the pm peak hour. This would increase corridor-level transit loadings for major routes serving Parnassus Heights by about two percent when those loadings would already exceed MUNI's load factor objective.

Transit ridership in the Parnassus Heights area is projected to increase under year 2010 conditions without the LRDP. A conservative estimate of one percent per year growth in transit demand was assumed for purposes of the EIR, consistent with the San Francisco traffic growth assumptions discussed earlier. With this assumption, the corridor-level average load factor for all five transit lines would increase to 99 passengers per peak-hour vehicle, for a load factor of 1.06 (with the LRDP) which would exceed the MUNI service standard. In general, if MUNI load factors were consistently exceeded, MUNI would implement route, schedule and vehicle service modifications to meet demand and stay within the load factors.

Activities associated with the LRDP at Parnassus Heights in 2010 would generate approximately 368 net new transit trips per day and up to 49 net new transit trips during the am peak hour and 38 net new trips during the pm peak hour. These net new transit trips could increase somewhat if UCSF were successful in diverting additional Parnassus Heights person trips from vehicle trips to transit trips through implementation of Mitigation Measure 4C-1. Although this could further exacerbate over-capacity conditions on transit serving Parnassus Heights if MUNI did not implement service modifications, the overall benefit of shifting trips from single-occupancy vehicles to transit would be beneficial and would promote the city's "Transit First" policy. In addition, LRDP activities at Parnassus Heights would generate further demand for other transit services via shuttles and/or MUNI to BART, CalTrain, SamTrans, AC Transit and Golden Gate Transit transfer locations.

As the MUNI peak-hour local factor for those routes is projected to be 1.06 in 2010, indicating over-capacity conditions, the additional LRDP-related trips would be considered a significant effect. MUNI's policy is to implement route, schedule and vehicle service

modifications to meet demand and monitor load factor objectives. Given current funding constraints for transit operations and the expectation that further cuts in federal transit subsidies will occur, the ability of MUNI to increase transit service to meet demand cannot be projected.

Mitigation Measure 4C-4. Transportation Demand Management (TDM.) (Significant/Unavoidable). TDM programs implemented by UCSF could reduce the number of daily, am and pm peak-hour vehicle trips generated by LRDP activities at Parnassus Heights. TDM measures could also include expanded UCSF shuttles from other UCSF sites and providing transit and shuttle information by phone or mail as part of visitor/out-patient appointment confirmation. TDM measures that emphasized UCSF shuttle services would potentially reduce LRDP-related transit trips on MUNI.

While UCSF TDM programs are intended to reduce trips by single-occupant vehicles and this could shift additional trips to MUNI, the TDM program also includes UCSF shuttle service that would potentially avoid additional demands on MUNI. Because the effect of those measures cannot be quantified, increased MUNI trips resulting from LRDP activities at Parnassus Heights would be considered an unavoidable impact.

c. Parking

The 1996 LRDP would result in a demand for 14 additional parking spaces at the Parnassus Heights site (see Table 4-5). This small increase in projected parking demand, with an expected increase of 823 daily vehicle trips, is a result of the changes in specific population categories that would be expected with implementation of the LRDP at Parnassus Heights. UCSF staff who typically arrive and depart during the am and pm peak periods and occupy parking spaces for eight hours or more, would decrease by 446 trips (on a daily average) under the LRDP. Out-patients and visitors, who would typically arrive and depart during non-peak periods and would occupy parking spaces for two hours or less, would increase by 1,269 people (on a daily average) under the LRDP.

The relatively small net parking demand increase of 14, therefore, reflects the reduction in demand for spaces occupied by staff all day, and an increased demand for spaces occupied by out-patients or short-term visitors allowing spaces to be used by four or more users throughout the day.

The LRDP activities at Parnassus Heights would not generate a substantial change in parking demand, but foreseeable changes would reduce the available parking supply in the area. Those include the loss of 17 automobile parking spaces and 24 motorcycle parking spaces on Irving Street between Second and Third Avenues. (See the Parking subsection of this chapter's Setting section for more detail on these parking changes.) For the purposes of this EIR, it is assumed that the 24 motorcycle spaces would be moved to another location, but would displace three automobile parking spaces. The total net loss of parking with these assumptions will be 20 on-street spaces. While the Golden Gate Park Master Plan process

**TABLE 4-5: PARNASSUS HEIGHTS
Net New Peak-hour Parking Demand**

UCSF Population Category ¹	Trip Generation Changes ¹	Projected Peak-hour Parking Demand ²
Professional Researchers	(200)	(84)
Staff	(246)	(103)
Patients	763	107
Visitors	<u>506</u>	<u>94</u>
Total	823	14

Notes:

1. Table 4-3
 2. Parking demand estimates are based on the net new vehicle trip generation by mode: Parking demand estimates assume that 84 percent of professional researchers/staff, 37 percent of visitors and 28 percent of patients are on-site during the morning peak parking demand period.
- (xxx): Number in parentheses indicates decreases in vehicle trips/parking demand associated with implementation of LDRP at Parnassus Heights.

Source: Fehr & Peers Associates, Inc.

underway might result in changes in parking restrictions in the park, no formal parking proposals have been adopted. Therefore, this EIR assumes no change in the availability of long-term on-street parking on Kezar Drive or Martin Luther King, Jr. Drive.

Impact 4C-5. Parking Demand Exceeds Supply (Project/Significant). Increased parking demand resulting from LRDP activities at Parnassus Heights exceeds the parking supply. This would be a significant impact.

The 14-space net new parking demand associated with the LRDP activities at Parnassus Heights represents an increase of less than 0.5 percent in total parking demand from UCSF uses. However, due to already saturated parking conditions, this new demand, in combination with the expected loss of some on-street parking in the area, would result in a significant impact. With the increased demand for parking associated with the LRDP (14 spaces) and the loss of 20 on-street spaces, on-street parking occupancies would increase to 96 percent during the morning peak parking demand hour (7:30 to 8:30 am). Since a five percent vacancy factor is required to allow vehicles to circulate and maneuver, 95 percent occupancy is considered the practical capacity of on-street parking. The projected occupancy of 96 percent would, therefore, represent over-saturated on-street parking conditions. To the extent that the new parking demand is for short-term spaces, more visitors/out-patients may seek parking in residential permit parking areas, where short-term parking is permitted.

Mitigation Measure 4C-5. Transportation Demand Management (TDM) Expansion and Parking Operations Improvements (Less Than Significant).

Mitigation Measure 4C-1, above, would include TDM measures to reduce vehicle trips to the Parnassus Heights site and corresponding parking demand at the site. In addition, LRDP proposals for parking at Parnassus Heights include:

- Study the expansion of the existing valet parking program, which could include additional valet parking in the Crede Ambulatory Care Center garage, the Millberry Union garage, and/or the Woods, Surge and Westside parking lots.
- Encourage the San Francisco Police Department to increase enforcement related to illegal parking in neighborhoods surrounding Parnassus Heights.
- Investigate the provision of parking at new remote parking lots which would connect to Parnassus Heights via the UCSF shuttle system.
- Evaluate existing pricing policies for the parking supply, in light of possible shifts between short-term and long-term use, and changes in patient demand for parking.

Implementation of these measures would reduce the parking effects to a less-than-significant level.

d. Pedestrian and Bicycle Circulation

LRDP activities at Parnassus Heights would generate about 70 net new bicycle/pedestrian trips over the average day and up to eight net new bicycle/pedestrian trips during the peak hours, as shown in mode splits in Table 4-2. Ample sidewalks and signal controls are provided adjacent to the Parnassus Heights site to accommodate this modest increase in bicycle/pedestrian demand and to avoid pedestrian and bicycle circulation conflicts.

Impact 4C-6. Increased Pedestrian/Bicycle/Vehicle Conflicts (Project/Less Than Significant). LRDP activities at Parnassus Heights would result in a net increase of about 70 bicycle/pedestrian trips on the average day and 8 during the peak hour. The small increase in pedestrian and bicycle trips in the Parnassus Heights area would not be expected to increase pedestrian/bicycle/vehicle conflicts.

Existing and planned sidewalks, signals and streets adjacent to the Parnassus Heights site could accommodate this modest increase in bicycle/pedestrian demand. Impacts to pedestrian/bicycle/vehicle conflicts would be negligible.

Mitigation Measure 4C-6. (Less Than Significant). None required.

1. a) University of California San Francisco, *Vision Research Laboratory Building Final Environmental Impact Report*, SCH No. 83091307, June 1984.

 b) University of California San Francisco, *Campus Library Final Environmental Impact Report*, SCH No. 86012808, June 17, 1986.

 c) University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*, SCH No. 93013064, January 5, 1994.
2. Wilbur Smith Associates, *UCSF Long Range Development Plan: UCSF Parnassus Campus Parking Demand Estimates Discussion Paper*, May 16, 1994.
3. City and County of San Francisco, Department of City Planning, *San Francisco Master Plan*, Transportation Element, 1983 (updated 1986).
4. Richard Stein, Department of Parking and Traffic, City and County of San Francisco, telephone conversation with Fehr & Peers, August 24, 1994.
5. Fehr & Peers Associates, *UCSF Parnassus Heights Area On-Street Parking Study*, February 16, 1996.
6. City and County of San Francisco, Department of City Planning, *Neighborhood Parking Plan*, 1985.
7. Fehr & Peers Associates, *UCSF Parnassus Heights Area On-Street Parking Study*, February 16, 1996. About 45 respondents were questioned for the survey.
8. William Wycko, Department of Parking and Traffic, City and County of San Francisco, telephone conversation with Fehr & Peers, January 6, 1996.
9. William Wycko, Department of Parking and Traffic, City and County of San Francisco, telephone conversation with Fehr & Peers, January 6, 1996.

D. AIR QUALITY

1. SITE-SPECIFIC SETTING

This section discusses existing air quality conditions in San Francisco, including existing information regarding critical air pollutants and toxic air contaminant emissions from the Parnassus Heights site, which are based primarily on recent studies of the Parnassus Heights Central Utilities Plant and of health risks associated with hospital, clinical and research activities at that site which is currently under construction. This section also analyzes air quality impacts related to construction activities, vehicle emissions and future research activities at Parnassus Heights.

a. Air Quality Monitoring Data

Criteria Air Pollutants

Table A-4-1 in Appendix 4 presents a five-year summary of the major criteria air pollutant emission data collected at the Bay Area Air Quality Management District (BAAQMD) monitoring stations in San Francisco at 10 Arkansas Street, approximately three miles to the east of the Parnassus Heights site, and at 939 Ellis Street, which only measures carbon monoxide (CO), approximately three miles to the northeast. There have been no exceedances of the state or federal 1-hour ozone or nitrogen dioxide (NO_x) standards for the past five years at the Arkansas Street monitoring station. There have been no exceedances of the state or federal 1-hour or 8-hour CO standards at either monitoring station for the past five years. The state 24-hour average particulate (PM)₁₀ standards have been frequently exceeded at Arkansas Street during the last five years, as they are regularly exceeded elsewhere in the Bay Area.

Comparison of these data with those from other BAAQMD monitoring stations indicates that San Francisco's air quality is among the least degraded of all the developed portions of the Bay Area. The prevailing winds blowing off the Pacific Ocean reduce the potential for San Francisco to receive pollutants from elsewhere in the region.

Motor vehicles are the major source of CO, the most abundantly emitted air pollutant in the area. Existing curbside 1-hour and 8-hour average CO concentrations were modeled along eight major arterial roadway segments on and near the Parnassus Heights site, using the CALINE4 computer model. (See Table 4-6). The CALINE4 computer model was initialized, as recommended by the BAAQMD, with meteorological parameters characteristic of worst-case CO dispersion conditions, EMFAC7F Version 1.1 CO emission rates, and traffic data compiled for this report.

Due to San Francisco's relatively high background CO level and the relatively high volumes and low travel speeds of motor vehicles on the local roadway segments, the modeling concludes that the nine parts per million (ppm) 8-hour CO standard is currently exceeded, under worst-case meteorologic conditions, along Lincoln Way east of 19th Avenue, Fell Street east of Stanyan Street, Oak Street east of Masonic Avenue, and Kezar Drive west of Waller Street.

**TABLE 4-6: PARNASSUS HEIGHTS
CURBSIDE CARBON MONOXIDE CONCENTRATIONS ALONG SELECTED ROADWAYS**

Roadway Segment	Adjacent Land Use	One-Hour Average CO (ppm)			Eight-Hour Average CO (ppm)		
		Existing	Future Baseline (2010)	Future w/ Project (2010)	Existing	Future Baseline (2010)	Future w/ Project (2010)
Lincoln E of 19th	Residential; Retail	17.8	8.3	8.3	12.2	5.6	5.6
Irving E of 19th	Residential; Retail	10.1	5.9	5.9	6.8	4.0	4.0
7th S of Lincoln	Residential; Retail	13.1	6.9	6.9	8.9	4.6	4.6
Parnassus E of 5th	Residential; UCSF	11.1	6.8	6.8	7.5	4.6	4.6
Stanyan S of Geary	Residential	11.8	6.6	6.6	8.0	4.4	4.4
Fell E of Stanyan	Residential	18.6	8.5	8.5	12.8	5.8	5.8
Oak E of Masonic	Residential	17.7	8.5	8.5	12.1	5.8	5.8
Kezar W of Waller	Golden Gate Park	17.9	8.2	8.3	12.2	5.6	5.6

Violations of ambient CO standards above are shown in bold.

CO Background:

One-Hour Average -- Existing: 8.1 ppm; Future: 5.2 ppm
Eight-Hour Average -- Existing: 5.4 ppm; Future: 3.5 ppm

Ambient CO Standards:

One-Hour Average -- Federal: 35 ppm; State 20 ppm
Eight-Hour Average -- Federal and State: 9 ppm

Source: EIP Associates, 1996.

Toxic Air Contaminants

Table A-4-2 in Appendix 4 gives a summary of the annual averages of the measured concentrations of 12 air toxics monitored by the BAAQMD for the monitoring station located at 10 Arkansas Street, approximately three miles east of the Parnassus Heights site. These data provide concentrations trends of those pollutants, but as noted in Section 3.D.1, there are no ambient standards for these toxic air contaminants.

b. Sensitive Receptors in the Parnassus Heights Area

Sensitive receptors include the users of UCSF hospitals, outpatient clinics and a child-care center at the Parnassus Heights site and residents of residential areas surrounding Parnassus Heights to the west, north and east.

c. Existing Parnassus Heights Emissions

Criteria Air Pollutants

After motor vehicles, the major source of criteria air pollutants at Parnassus Heights is the utility plant. The existing power plant has four steam boilers which primarily burn natural gas but can also use fuel oil. The boilers are used to provide steam to the Parnassus Heights site and to generate electricity through three existing steam turbine generators (one steam generator is a stand-by unit). The existing plant will be replaced in 1997 by the new Central Utilities Plant, which is currently under construction.

The criteria air pollutant emissions from the existing power plant and from the new Central Utilities Plant (as estimated in the *University of California, San Francisco Parnassus Heights Central Utilities Plant Project FEIR*), are given below in Table 4-7.

When the new Central Utilities Plant is operating and the existing power plant is closed, the net NO_x emissions from on-site utilities sources would be expected to decrease and no BAAQMD stationary source significance thresholds would be exceeded for the other criteria pollutants.

Toxic Air Contaminant Emissions

The major sources of toxic air contaminant emissions at the Parnassus Heights site are utilities, research and clinical sources.

Utilities Sources

The *Parnassus Heights Central Utilities Plant Project Final EIR* estimated toxic air contaminant emissions and their associated health risks for the existing power plant and the new Central Utilities Plant. The *Central Utilities Plant Project FEIR* estimated the emissions of 16

**TABLE 4-7: PARNASSUS HEIGHTS POWER PLANT CRITERIA AIR
POLLUTANT EMISSIONS (TONS/YEAR)**

Pollutant	Existing Power Plant Emissions	New Central Utilities Plant Emissions	Net Emissions	BAAQMD Standards of Significance
NO _x	54.6	19.5	-35.1	27
CO	14.4	25.7	11.3	100
ROG	1.5	4.0	2.5	27
PM ₁₀	1.3	14.9	13.6	27
SO ₂	0.3	2.5	2.3	27

air toxic contaminants associated with operation of the four boilers at the existing plant and the 12 emergency generators located throughout the Parnassus Heights site. The resulting incremental additions to ambient air concentrations were then calculated using an atmospheric dispersion model. The results of the health risk assessment were used to estimate the cancer risk that might occur as a result of continuous exposure of a maximally exposed individual (MEI) over a 70-year lifetime via multiple environmental pathways (e.g., inhalation from the air, ingestion from food and water). Non-cancer chronic and acute hazard effects were also evaluated. The procedures, the cancer potency values, the unit risk factors, and the chronic and acute acceptable exposure levels used in the health risk assessment were consistent with the California Air Pollution Control Officers Association (CAPCOA) *Air Toxics "Hot Spots" Program Risk Assessment Guidelines*.¹

The study found that the MEI at Parnassus Heights would face a maximum risk of 2.4 in one million excess lifetime cancer risk as a result of operating the existing power plant and generators. The total chronic hazard index was lower than 1.0, indicating that the potential for non-cancer health effects caused by the existing power plant and emergency generator operations was not significant. In the acute hazard analysis, no maximum hourly concentrations of the chemicals analyzed exceeded the acute acceptable exposure levels listed by CAPCOA.

For the air toxic contaminant emissions from the proposed Central Utilities Plant, an MEI at Parnassus Heights would face a maximum risk of 4.7 in one million excess lifetime cancer risk, a net increase of 2.3 in one million, but still less than the BAAQMD significance threshold. The total chronic hazard index would remain below 1.0, indicating that the potential for non-cancer health effects caused by the Central Utilities Plant would not be significant. The acute hazard analysis found that the maximum hourly concentration of nickel has the potential to exceed CAPCOA's acute acceptable exposure levels (AEL) during emergencies when the plant operates on diesel fuel instead of natural gas. The EIR recommended that the plant's nickel emissions be measured after operation commenced to verify the EIR analysis.

Research and Clinical Sources

In 1989, Radian Corporation prepared a health risk assessment (HRA) for the Parnassus Heights site.² Radian's study defined toxic air contaminant emission sources at Parnassus Heights, surveyed laboratory and fume hood usage, implemented an air sampling program to characterize significant emissions from UCSF and estimated total emissions from UCSF. The HRA had four components:

- Hazard identification determined the toxic chemicals and their delivery routes (e.g., inhalation, ingestion).
- Exposure assessment included the computer modeling of the air emissions and their transport routes to the exposed population.
- Dose response evaluated the relationship between air emissions and anticipated health effects.
- Risk characterization described the anticipated risks to the surrounding population under worst-case exposure conditions.

With ethylene oxide abatement devices installed at Moffitt Hospital and the School of Dentistry, the calculated cancer risk from all toxic air contaminant emissions resulting from hospital, research and teaching uses at Parnassus Heights was estimated to be 4.7 in one million for the MEI as shown in Table 4-8. This is a worst-case risk under conservative exposure assumptions; the actual risk is unlikely to be higher and could be as low as zero. The increased incidence of cancer, or cancer burden, would be 0.1 for the population of San Francisco (based on census tract data and a projected city population of 753,000 in the year 2015).

The Radian study estimated the cancer risk from research and teaching activities at Parnassus Heights to be 0.48 in one million, as of 1988. Since 1988, the total amount of space devoted to laboratories at Parnassus Heights has grown from 373,490 assignable square feet (asf) to 423,667 asf, a 13 percent increase in total asf for research and teaching at Parnassus Heights. Using a risk to asf ratio for these uses, this increase in floor area devoted to research and teaching would increase cancer risk from these uses at Parnassus Heights by 0.06 in one million, to 0.54 in one million total. The Radian analysis of non-cancer risks associated with research and teaching indicated that neither the acute nor the chronic hazard indices exceeded one. If the hazard indices are less than one, then adverse effects are not likely.

Table 4-8 provides existing carcinogenic risk from all toxic air contaminants emitted by hospital, research and teaching sources at Parnassus Heights.

Odors

The existing boilers and emergency generators which burn diesel fuel during routine testing or during periods of PG&E curtailment of natural gas use have resulted in odor complaints from individuals at Parnassus Heights, including those at the Moffitt Long Hospitals. These

**TABLE 4-8: CARCINOGENIC RISK ASSOCIATED WITH
PARNASSUS HEIGHTS TOXIC EMISSIONS¹**

Source	Existing Carcinogenic Risk
Moffitt Sterilizer	0.22
Dental School Sterilizer	0.02
Research and Teaching	0.48
Clinical	3.98
Incinerator	0.27
All	4.7 ²

Notes:

1. Excluding utility sources.
2. The location of maximum risk varies for each source. Thus, the maximum risk due to all sources is not the sum of the maximum risks due to each individual source.

Source: Radian Corporation, *Assessment of Environmental Impacts for the University of California San Francisco, Phase III, Health Risk Assessment*, 1989.

odors are typically short-lived and can be avoided by potential receptors who are indoors if windows are kept closed during firing of the generators.

2. IMPACTS AND MITIGATION MEASURES

Impact 4D-1. Air Pollutant Emissions (Construction/Significant). Demolition and construction activities proposed at the Parnassus Heights site under the LRDP would generate PM₁₀ emissions which would exceed federal and/or state ambient air quality standards. Construction-related PM₁₀ emissions would result in violations of that standard.

Construction activities at Parnassus Heights would generate criteria air emissions related to transporting workers and construction materials to and from the site, operating construction equipment at the site and disturbing soil at the sites. The concentration of such emissions, and the resultant ambient concentrations near construction sites, would be very dependent upon local meteorology and topography, variations in soil silt and moisture content, and the intensity of construction equipment use.

PM₁₀ would be generated by demolition (including the demolition of the Aldea Family Student Housing, MR IV and UC Hall buildings), excavation and grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed earth surfaces. The total area of land that could be disturbed by demolition and construction activities is about nine acres at the Aldea Family Student Housing, and about three acres at the MR IV and UC Hall sites. This could produce up to 2.3 tons of PM₁₀ emissions per month of construction. These activities would not occur concurrently, so the total emissions from any one project would be much less. Exhaust emissions resulting from the transportation of workers and materials to the construction sites depend on travel modes and the distances traveled. Exhaust emissions from construction equipment used at a construction site are related to the equipment type, the use of that equipment and the condition of the equipment. Demolition and construction activities proposed at the Parnassus Heights site would not be expected to cause violations of federal and/or state ambient air quality standards for ozone or carbon monoxide.

Mitigation Measure 4D-1. (Less Than Significant). UCSF would require in all construction contracts for work at Parnassus Heights that the contractors reduce major criteria air pollutant emissions by complying with the air pollution control strategies developed by the BAAQMD.

UCSF would include the following requirements in all construction contracts:

- Water all active construction areas at least twice a day, or as needed to prevent visible dust plumes from blowing off-site.
- Use tarpaulins or other effective covers for on-site storage piles and for haul trucks that travel on public streets.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep all paved access routes, parking areas and staging areas daily (preferably with water sweepers).
- Sweep streets daily (preferably with water sweepers) if visible amounts of soil material are carried onto public streets.

If the working area of any demolition or construction site exceeds four acres at any one time (such as at Aldea Family Student Housing), implement the following measures in addition to those above:

- Apply (non-toxic) soil stabilizers to inactive construction areas.
- Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.
- Limit construction site vehicle speed to 15 miles per hour (mph) on unpaved areas.

- Replant vegetation in disturbed areas as quickly as possible.

If the working area of any construction site is located near any sensitive receptors, implement the following measures in addition to those above:

- Suspend demolition, excavation and grading activity when winds exceed 25 mph.

Impact 4D-2. Vehicle Operation Air Pollutant Emissions (Project/Less Than Significant). Net new vehicle trips associated with LRDP activities at Parnassus Heights would generate criteria air pollutants at levels which would not exceed the BAAQMD 80 lb/day Best Available Control Technology (BACT) threshold.

Over the next 15 years, the state-average vehicular emissions of CO, ROG, NO_x, and PM₁₀ per mile traveled are expected to decrease by about 70 percent, 70 percent, 40 percent and 7 percent respectively, according to the latest EMFAC7F1.1 model developed by CARB. LRDP proposals for Parnassus Heights would generate about 823 net new vehicular trips per day at Parnassus Heights at full buildout. As shown in Table 4-9, the 4 lb/day of ROG, 5 lb/day of NO_x and 14 lb/day of PM₁₀ emitted by these new vehicular trips would not exceed BAAQMD significance thresholds.

Mitigation Measure 4D-2. (Less Than Significant). None required.

TABLE 4-9: COMPARISON OF PARNASSUS HEIGHTS VEHICULAR EMISSIONS (YEAR 2010) WITH BAAQMD SIGNIFICANCE THRESHOLDS

Pollutant	Daily Emissions (lbs) Threshold	1996 LRDP Vehicular Daily Emissions (lbs)	Percent of Threshold
ROG	80	4.6	6%
NO _x	80	5.6	7%
PM ₁₀	80	15.7	20%

Notes:

Vehicular emissions were calculated using emission rates from the EMFAC7F1.1 model, developed by CARB, and average fleet mix, trip lengths, speeds, trip types and hot/cold start percentages provided by BAAQMD.

Source: Fehr & Peers, 1996.

Impact 4D-3. Roadside Ambient Carbon Monoxide Levels (Project/Less Than Significant). Vehicle trips associated with full buildout of LRDP development at Parnassus Heights would generate CO emissions on area roads. Those CO emissions, added to background CO emissions and future cumulative growth with the LRDP, would not result in violations of the roadside CO standards in the Parnassus Heights vicinity.

Mitigation Measure 4D-3. (Less Than Significant). None required.

Impact 4D-4. Operational Stationary Toxic Air Contaminant Emissions (Project/Less Than Significant). Implementation of the LRDP at Parnassus Heights would result in a reduction in toxic air contaminant emissions.

Because the amount of space devoted to research activity at Parnassus Heights would be reduced under the LRDP, there would be a corresponding reduction in toxic air contaminant emissions at the site. The total health risk from toxic air contaminant emissions from all activities at Parnassus Heights would be lower under the LRDP than with existing conditions, and would continue to be below the ten in one million cancer risk criteria of the BAAQMD.

The cancer risk to a MEI currently living near Parnassus Heights would be 0.54 chances in one million over a 70-year lifetime of continuous exposure to UCSF's research-related toxic air contaminant emissions. The Parnassus Heights site currently has about 760,000 gsf of research space, or approximately 424,000 asf.³ Under the 1996 LRDP, research space at Parnassus Heights would be reduced by about 36,000 gsf. Based on the ratio of research space at Parnassus Heights to the estimated cancer risk, the cancer risk to a MEI living near Parnassus Heights would be reduced as a result of the LRDP to 0.51 chances in a million. All other sources of toxic air contaminants at Parnassus Heights (i.e., from the hospital and the Central Utilities Plant) would be expected to remain at their current, or in the case of the Central Utilities Plant projected, levels. Thus, the overall health risk from toxic air contaminant emissions at Parnassus Heights would decrease under the LRDP.

Mitigation Measure 4D-4. (Less Than Significant). None required.

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1. California Air Pollution Control Officers Association, *Air Toxics "Hot Spots" Program*, Risk Assessment Guidelines, January 1992.
 2. Radian Corporation, *Assessment of Environmental Impacts for the University of California, San Francisco: Phase III, Health Risk Assessment*, August 31, 1989.
 3. University of California, San Francisco, *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*, SCH No. 93013064, January 5, 1994, p. 125.

E. NOISE

1. SITE-SPECIFIC SETTING

a. Major Noise Sources in the Parnassus Heights Area

Vehicular traffic on the roadway network is the most significant source of noise in the Parnassus Heights area. Major roadways affecting the noise environment in the Parnassus Heights vicinity include Parnassus Avenue, Lincoln Way, Stanyan Street, Oak Street and Fell Street. Operational noise from UCSF facilities at the Parnassus Heights site also contributes to the noise environment at Parnassus Heights.

b. Locations of Sensitive Receptors

Noise-sensitive receptors in the Parnassus Heights area include occupants of existing clinical and educational facilities at Parnassus Heights, public parks and playgrounds (e.g., Golden Gate Park) and residential areas located north, west and east of the Parnassus Heights site.

c. Existing Noise Levels

Existing L_{dn} levels were calculated along eight roadway segments (at the setbacks of the nearest residences) in the Parnassus Heights vicinity. For an explanation of the noise terminology used in this section, please refer to Chapter 3, Section E. As shown in Table 4-10, the L_{dn} levels along the roadways range from the high 60s to the mid 70s dBA. These levels could cause traffic noise intrusions in older, insufficiently insulated residential units, even with closed windows facing the street.

A noise measurement was made in the Westside Parking Lot east of residences on Fifth Avenue near Judah Street on August 18, 1994. This location is near the Medical Research (MR) IV building, which will be replaced under the LRDP. During a 15-minute period between 11:05 am and 11:20 am, the average noise level was 46 dBA; noise levels ranged from a low of 44 dBA to a high of 50 dBA. Noise sources included distant traffic and heating, ventilating and air conditioning (HVAC) equipment in the School of Dentistry to the north. The measurement demonstrates that noise levels at locations shielded from roadway traffic can be substantially lower than noise levels along major roadways.

Additional noise data was compiled for the *Parnassus Heights Central Utilities Plant FEIR*.¹ Noise levels at residences along Edgewood Avenue east of Parnassus Heights are currently dominated by noise from the existing central plant. Distant traffic noise also contributes to this noise environment. Hourly average noise levels at the Edgewood Avenue homes range from 57 dBA to 60 dBA.

**TABLE 4-10: PARNASSUS HEIGHTS
MODELED TRAFFIC NOISE NEAR SELECTED ROADWAYS**

Roadway Segment	Adjacent Land Use	Ldn (dBA)			Applicable Standard ¹ (dBA)	Relationship With Compatibility Criteria ²		
		Existing	Future Baseline (2010)	Future w/ LRDP (2010)		Existing	Future Baseline	Future w/ LRDP
Lincoln E of 19th	Residential; Retail	75	76	76	60	No	Yes	Yes
Irving E of 19th	Residential; Retail	68	69	69	60	No	Yes	Yes
7th S of Lincoln	Residential; Retail	71	72	72	60	No	Yes	Yes
Parnassus E of 5th	Residential; UCSF	70	71	71	60	No	Yes	Yes
Stanyan S of Geary	Residential	71	72	72	60	No	Yes	Yes
Fell E of Stanyan	Residential	76	76	76	60	No	Yes	Yes
Oak E of Masonic	Residential	76	77	77	60	No	Yes	Yes
Kezar W of Waller	Golden Gate Park	75	76	76	70	No	Yes	Yes

Notes:

- Noise exposure standard is the *San Francisco Master Plan* Environmental Protection Element, Land Use Compatibility Chart for Community Noise. Noise standard entries are the highest levels considered "satisfactory, with no special noise insulation requirements" for the most noise-sensitive land use in the roadway corridor.
- Compatibility Criteria:
Existing: Existing L_{dn} is within the range defined as "satisfactory with no special noise insulation requirements."
Project: a) Future baseline L_{dn} is outside the satisfactory range and project increment is less than one dBA.
b) Future baseline L_{dn} is within the satisfactory range and project increment is less than three dBA.
Cumulative: a) Existing L_{dn} is outside the satisfactory range and cumulative increment is less than one dBA.
b) Existing L_{dn} is within the satisfactory range and cumulative increment is less than three dBA.

Source: EIP Associates

The *San Francisco Master Plan* identifies noise exposure criteria as a function of land use. The maximum L_{dn} considered "satisfactory, with no special noise insulation requirements" are as follows:

Residential	60 dBA
Educational (classrooms, libraries)	65 dBA
Commercial (retail, restaurants)	70 dBA
Parks & Playgrounds	70 dBA

By these criteria, the existing noise environments along most of the roadways in the Parnassus Heights vicinity are "conditionally acceptable" for the nearby land uses; that is, all such uses could experience disruptive traffic noise intrusions indoors if their acoustic insulation were inadequate. Except for the buildings adjacent to Parnassus Avenue, the Parnassus Heights site would generally have an acceptable noise environment for medical and educational uses without consideration for transportation noise mitigation.

2. IMPACTS AND MITIGATION MEASURES

Impact 4E-1. Construction Noise (Construction/Significant). Demolition, construction and seismic upgrade activities resulting from implementation of the LRDP at Parnassus Heights could generate noise exceeding 80 dBA at 100 ft. This would be a temporary significant impact.

Noise would be generated by LRDP demolition, construction and seismic upgrade activities at Parnassus Heights. Actual noise levels from construction equipment would depend on the mix of equipment types, the use schedule and whether or not noise control measures were implemented. (See Chapter 3, Section E, Table 3-7, for an indication of construction equipment noise levels.) Although the plans for construction projects under the LRDP are not specific enough at this time to estimate accurately noise emissions from construction equipment and their consequent off-site effects, the noise emitted from several pieces of construction equipment operating simultaneously in proximity to each other could exceed 85 dBA at 100 feet, the standard set in the San Francisco Noise Ordinance. Existing residential uses, particularly those south and west of Fifth Avenue and Judah Street, and north of Parnassus Avenue between Third and Fifth Avenues, are near or adjacent to the major proposed LRDP development sites (UC Hall, MR IV and the services building sites). Noise levels in these residential areas would exceed existing noise levels by five to ten dBA during demolition and construction activities. Occupants of Moffitt/Long Hospitals could be affected by construction noise at the services building site. Other construction activities related to seismic upgrades and infrastructure improvements would occur at various locations on the Parnassus Heights site throughout the LRDP planning period. However, much of this work would occur indoors and would therefore result in lesser noise impacts than exterior construction work. The duration of such noise would vary by construction stage. Some residences to the south of the Aldea Family Student Housing parcel could be affected by demolition and construction noise.

Significant construction noise impacts could result from failure to reduce such noise to the maximum feasible extent, from use of impact tools (i.e., jackhammers, pile drivers and impact wrenches) lacking intake and exhaust mufflers which meet San Francisco Department of Public Works specifications, and from nighttime construction work. All construction noise impacts would be temporary in nature, lasting for the duration of individual demolition and construction projects, and would be localized in effect. However, numerous construction projects would occur at Parnassus Heights under the LRDP over a period of years, prolonging the extent of construction noise in general, although not always at the same locations.

Mitigation Measure 4E-1. (Significant/Unavoidable). UCSF would require construction contractors to minimize construction noise impacts by the following strategies:

- Limit construction hours to between 7:00 am and 8:00 pm, unless night work is reviewed and authorized by UCSF.
- Require use of construction equipment with noise reduction devices, such as mufflers which are in good condition.
- Erect temporary noise walls when construction would occur adjacent to existing residences.
- Minimize the use of impact tools to the extent possible.
- Locate stationary noise sources away from residential areas, and require use of acoustic shielding with such equipment when feasible and appropriate.

These mitigation measures would not, in all cases, reduce impacts to a less-than-significant level and therefore a temporary but significant and unavoidable impact would result.

Impact 4E-2. Traffic Noise (Project/Less Than Significant). Additional traffic generated by LRDP activities at the Parnassus Heights site would not perceptibly affect noise-sensitive uses along the studied access routes.

Future noise levels were modeled at the closest characteristic land uses along eight arterial roadway segments in the Parnassus Heights vicinity, as shown in Table 4-10. While existing traffic-related noise levels exceed the City of San Francisco criteria for “satisfactory with no special noise insulation,” new traffic generated by LRDP activities at Parnassus Heights would increase average daily traffic on local streets by less than five percent and would increase noise levels by no more than 0.1 dBA, an inaudible increment, along any studied roadway segment.

Mitigation Measure 4E-2. (Less Than Significant). None required.

Impact 4E-3. Traffic Noise (Cumulative/Less Than Significant). Cumulative traffic in the Parnassus Heights vicinity without the LRDP would not perceptibly worsen the noise environment along any of the studied site access roads as shown in Table 4-10.

Cumulative traffic in the Parnassus Heights vicinity would increase by about 15 percent by 2010 and would increase noise levels by no more than 0.6 dBA over existing levels, an inaudible increment, along any of the studied roadway segments, as shown in Table 4-10.

Mitigation Measure 4E-3. (Less Than Significant). None required.

Impact 4E-4. Stationary Equipment Noise (Project/Significant). Operation of ventilation or air conditioning equipment installed outside of new buildings developed at Parnassus Heights under the LRDP, or operation of upgraded equipment on existing buildings, could generate noise affecting nearby residences. This could be a significant impact.

In connection with The Regents' approval in January 1994 of the Parnassus Heights Central Utilities Plant project, UCSF began investigating the future modifications of all UCSF noise sources at Parnassus Heights in an attempt to attain the limits established by the San Francisco Noise Ordinance at surrounding residential property lines. This would require that operational noise levels from UCSF activities at Parnassus Heights not exceed 50 dBA during the night and 55 dBA during the day at residences closest to the Parnassus Heights UCSF boundary lines. UCSF established a three phase noise attenuation plan to ensure that the goal of meeting the Noise Ordinance limits could be achieved during the 1996 LRDP time frame. Phase I, now completed, catalogued all existing rooftop equipment -- the major operational noise sources -- and conducted nighttime surveys using noise meters along each segment of the boundary line of the Parnassus Heights site. As expected, noise limits are not exceeded along the southern and western perimeters of the site but are exceeded along the northern and eastern perimeters. Phase II, currently underway, will develop equipment standards for future equipment installation as well as specific mitigations for existing prominent noise sources. At the conclusion of Phase II, UCSF will have an attenuation plan to achieve the San Francisco Noise Ordinance limits. Phase III will begin after completion of the Central Utilities Plant and demolition of the current power plant. An abbreviated noise survey and review of equipment standards would confirm UCSF's ability to meet operational noise limits by 2010.

Mitigation Measure 4E-4. (Less Than Significant). Final design specifications for the proposed equipment at new or renovated buildings at Parnassus Heights would include performance standards that would comply with the noise limits established by the San Francisco Noise Ordinance. These specifications would require that operational noise levels from UCSF activities at Parnassus Heights not exceed 50 dBA during the night and 55 dBA during the day at residential property lines closest to the Parnassus Heights site boundary lines.

1. University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*, SCH No. 93013064, January 5, 1994.

F. HAZARDOUS MATERIALS

1. SITE-SPECIFIC SETTING

a. Hazardous Materials Use

This section addresses existing hazardous material/public health and safety conditions and the potential environmental impacts which could result from LRDP activities at the Parnassus Heights site. UCSF uses at Parnassus Heights include uses which generate hazardous materials, such as hospital, other clinical uses and medical research uses. This section focuses on the impacts which could result from LRDP activities at Parnassus Heights related to the use of hazardous materials, generation of hazardous wastes, relocation of operations and structural contamination of the buildings to be demolished. A discussion on the existing use of hazardous materials and generation of hazardous waste is presented in Chapter 3, Section F.

A list of solid, liquid and gaseous chemicals that could potentially be present at the Parnassus Heights laboratories is presented in Appendix 5.

b. Hazardous Waste Generation

Hazardous waste generated as a result of hazardous materials use at Parnassus Heights as described in Chapter 3, Section E and hazardous waste handling requirements are presented in Appendix 5.

c. Structural and Building Component Hazards

Underground Storage Tanks

Underground storage tanks are used to store hazardous materials, including petroleum products. Underground storage tanks may store fuel for motor vehicles and/or emergency power generation. There are seven underground storage tanks at Parnassus Heights. Two are 12,500-gallon diesel tanks and the remaining five are 30,000-gallon diesel tanks. No tanks are currently suspected to be leaking. However, UCSF plans to upgrade all 30,000-gallon diesel tanks, remove one 12,500-gallon tank and replace the remaining tank.¹

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are organic oils that function as electrical insulators in many types of electrical equipment. Until 1979, when the Environmental Protection Agency (EPA) banned the use of PCBs, they were used in transformers and capacitors in all common place installation. The buildings at Parnassus Heights that would be demolished under the LRDP may contain PCBs, since they were constructed prior to 1979.

Asbestos

Asbestos, a naturally-occurring fibrous material, was widely used in building construction prior to the 1970s as a fireproofing and insulating agent. The EPA banned the use of asbestos for such purposes in the 1970s. Asbestos is known to cause lung diseases in persons exposed to its airborne fibers. Asbestos may be found in most of the building materials and components (including walls, ceilings, floors, tiles, fireproofing and pipe insulation) of the Parnassus Heights buildings that would be demolished under the 1996 LRDP.

2. IMPACTS AND MITIGATION MEASURES

Impact 4F-1. Use of Hazardous Materials (Project/Less Than Significant). Implementation of the LRDP at Parnassus Heights would result in continued use of hazardous materials, including hazardous chemicals, radioactive materials and biohazardous materials, that could expose the community in the Parnassus Heights vicinity to potential health or safety risks. Compliance with state and federal laws and regulations, and local ordinances, as well as UCSF policies, would avoid significant effects.

LRDP proposals at Parnassus Heights would result in a net reduction of approximately 39,600 gsf of research space, leaving a total of approximately 726,000 gsf of research space at the site. Of that total amount, approximately 80,000 gsf of new research space would be developed with state-of-the-art safety and materials-handling elements. Demolition of outmoded research facilities and construction of new state-of-the-art research facilities will promote UCSF's compliance with applicable federal, state and local regulations, as well as with internal UCSF policies and procedures.

With the implementation of the 1996 LRDP, UCSF would continue to use hazardous materials, including hazardous chemicals, radioactive materials and biohazardous materials in research activities similar to the existing activities at Parnassus Heights. However, the overall level of use of these hazardous materials would be expected to decline because of the net decrease in research space at Parnassus Heights under the LRDP. The general effects of use of these materials are discussed in Appendix 5.

UCSF is required to comply with health and safety and environmental protection laws and regulations. Although some violations of these laws and regulations were cited by the regulatory agencies during their routine inspections of the UCSF facilities during the past five years, UCSF has taken the required corrective actions. UCSF's procedures that are intended to protect the health and safety of UCSF employees and would continue with the implementation of the 1996 LRDP. These health and safety procedures would also protect the community in the vicinity of Parnassus Heights. Compliance with all local ordinances, state and federal laws and regulations as well as UCSF policies would reduce the impact of hazardous materials use at Parnassus Heights under the LRDP to a less-than-significant level.

Mitigation Measure 4F-1. (Less Than Significant). None required.

Impact 4F-2. Generation of Hazardous Chemical and Medical Waste (Project/Less Than Significant). Implementation of the 1996 LRDP at Parnassus Heights would result in continued generation of hazardous waste, including hazardous chemical and medical waste that could expose the community in the vicinity of Parnassus Heights to potential health or safety risks. Compliance with local ordinances, state and federal laws and regulations, as well as UCSF policies, would avoid significant effects.

Hazardous wastes are generated whenever hazardous materials are used. UCSF would continue to generate hazardous waste, including hazardous chemical waste and medical waste at Parnassus Heights with the implementation of the LRDP.

The overall level of hazardous waste generated at Parnassus Heights would be expected to decline because of the net decrease in research space at Parnassus Heights under the LRDP. Licensed treatment and disposal facilities are expected to be available with the capacity for accepting waste from Parnassus Heights, and UCSF would be able to safely manage the quantities of hazardous waste generated by the LRDP at Parnassus Heights. Chemical hazardous waste generated at Parnassus Heights would continue to be managed as required by applicable regulations and UCSF policies and procedures. All medical waste would be rendered non-hazardous prior to disposal, and existing health and safety practices would minimize the potential for adverse health effects prior to disposal. Because these practices would continue with the implementation of the 1996 LRDP, continued chemical and medical waste generation at Parnassus Heights would not be significant.

Mitigation Measure 4F-2 (Less Than Significant). None required.

Impact 4F-3. Generation of Low-Level Radioactive Waste (Project/Significant). Implementation of the LRDP at Parnassus Heights would continue to generate low-level radioactive waste for which a long-term disposal site may not be available. If the low-level radioactive waste were stored at Parnassus Heights, it could expose the community in the vicinity of Parnassus Heights to potential health or safety risks.

Radioactive waste generation, if not adequately managed, could pose health or safety threats analogous to those mentioned for radioactive materials use. Radioactive waste disposal would follow the guidelines and protocols set forth in UCSF's *Radiation Safety Manual*. Radioactive waste would be segregated by the generators into categories as required by UCSF procedures and packaged for collection by the UCSF Radiation Safety Office following the existing procedures. The technicians collecting the waste package would ascertain that the radiation dose rate of the waste package is within the required limit. Appropriate documentation would be attached to provide details on the quantities and type of radioactive waste in the package.

Dry long-lived radionuclides, which constitute approximately 20 percent of the radioactive waste stream at UCSF, require disposal at a low-level radioactive waste disposal facility. When the facility in Barnwell County, South Carolina stopped accepting low-level radioactive waste in 1994, the closing left 31 states, including California, with no permanent place for disposal of this radioactive waste. California is attempting to site a low-level radioactive waste disposal facility, but its siting is not assured. As part of the Southwestern Low-Level

Radioactive Waste Disposal Compact, a group of four states which, together, are responsible for disposal of their low-level radioactive waste, California received a license to begin construction of a new facility at Ward Valley in San Bernardino County. The construction of this new facility has been held up by litigation for the past two years. The Clinton Administration has ordered at least another year of safety tests at the Ward Valley site.² This process would further delay the opening of the facility. Although Barnwell County began accepting radioactive waste again in July 1995 from any state needing waste disposal facilities, it will run out of capacity in a few years.³ The facility in Barnwell County is only licensed until the year 2000.

Because long-term, legal disposal of low-level, long-lived radioactive waste is not readily available or guaranteed, UCSF may have to store these wastes on-site indefinitely or send them off-site to a licensed facility for storage until a disposal site becomes available. Such storage must be approved by the Radiologic Health Branch (RHB) of the California Department of Health Services. On-site storage of these materials for durations of several years would not present undue health and safety risks, provided proper regulatory requirements were met. Scientists are confident that the radioactivity of materials stored is so low that the public is not at risk.⁴ In addition, the overall rate of low-level, long-lived radioactive waste generation at Parnassus Heights under the LRDP would be expected to decline because of the net decrease of research space at Parnassus Heights under the LRDP. Over the long-term, depending on the duration of the disposal limitations and the ultimate accumulation of radioactive waste on-site, this impact could eventually become significant. In addition, the LRDP uses at Parnassus Heights would contribute to the cumulative low-level radioactive waste stream in California (see Impact 12F1-4).

According to the RHB, California radioactive materials licensees should: 1) minimize the amount of low-level, long-lived radioactive waste in their possession and avoid accumulating waste that cannot be disposed of at this time; 2) segregate radioactive wastes for disposal that are not subject to Southwestern Low-Level Radioactive Waste Disposal Compact regulations; 3) segregate waste that can be disposed of or reduced in volume by approved treatment methods; 4) segregate short-lived radioactive waste for decay; 5) consider recycling radioactive materials; 6) consider extended on-site storage of any remaining low-level radioactive waste; and 7) consider non-radioactive substitutes.⁵ As a RHB licensee, UCSF would follow these measures and, under the LRDP, would not increase the amount of long-lived radioactive waste currently generated at Parnassus Heights annually.

UCSF would adopt procedures for shipping long-lived radioactive wastes to Barnwell County again, as the facility has started accepting radioactive wastes, until an alternate facility is constructed.

Mitigation Measure 4F-3. (Less Than Significant). UCSF would implement procedures recommended by the RHB to maintain UCSF use of long-lived radioactive materials at or below current levels to avoid any increase in long-lived radioactive waste generation at Parnassus Heights.

Impact 4F-4. Relocation of Hazardous Materials (Construction/Less Than Significant).

Demolition of buildings at Parnassus Heights under the LRDP would require relocation of activities in those buildings, resulting in transportation of hazardous materials that are currently used in those buildings. Transportation of hazardous materials could expose the public in the vicinity of Parnassus Heights to potential health risks in the event of an accidental release.

Hazardous materials would be transported from some of the buildings that would be demolished at Parnassus Heights under the LRDP. Transportation of hazardous materials would be carried out in accordance with UCSF policies and procedures, and hazardous materials being transported from the site would meet US DOT requirements. Although the transportation of hazardous materials has associated risks of spills or leaks, appropriate management of transported wastes in compliance with applicable laws and regulations found in the Code of Federal Regulations, Title 49, would reduce these risks to less-than-significant levels.

Because outbound hazardous materials shipments would be packaged according to US DOT requirements, the consequences of any accidents involving hazardous materials in transport would be minimal. Hazardous material transport within the Parnassus Heights site would be conducted in secondary containment to minimize the potential effects of accidental breakage or leaking during transport.

Given the nature of UCSF operations at Parnassus Heights, it would be expected that relocation and demolition of existing laboratories would result in substantial amounts of hazardous materials being transported within a short period of time. This would increase the risk of accidents and could create substantial health and safety hazards for workers and the community in the Parnassus Heights vicinity. However, compliance with the regulatory requirements and the UCSF policies and procedures would minimize the risk of accidents and the hazards associated with such accidents to a less than significant level.

Mitigation Measure 4F-4. (Less Than Significant). None required.

Impact 4F-5. Exposure to Structural and Building Contaminants. (Construction/Significant). Demolition of buildings or structures contaminated with asbestos and PCBs at Parnassus Heights under the LRDP could cause adverse health impacts if human exposure occurs.

Buildings to be demolished at Parnassus Heights under the LRDP could contain asbestos. Airborne asbestos fibers could cause adverse health effects to on-site workers. Medical evidence published in 1986 by EPA suggests that exposure to asbestos fibers is harmful to human health. Friable asbestos-containing materials pose the greatest health threat. Inhalation of airborne fibers is the primary mode of asbestos entry into the body. Asbestos can cause lung cancer and asbestosis.⁶ The EPA believes that exposure to all airborne asbestos fibers should be reduced to the greatest extent possible. The California Department of Health Services has classified friable, finely divided, and powdered wastes containing greater than one percent of asbestos as hazardous waste.⁷ If material is not friable, it is considered to be a nonhazardous waste, regardless of its asbestos content, and thus can be handled as ordinary construction

waste. There exists some uncertainty regarding the hazardous nature of chrysotile asbestos. Chrysotile is a white mineral with a composition that tends to be soluble and disappears in tissue. Fibers tend to be curly and excluded from the periphery of the lung⁸; however, observing a conservative approach, chrysotile is treated as hazardous.

Buildings to be demolished at Parnassus Heights under the LRDP could also contain PCBs. Toxic effects in humans from exposure to PCBs include pigmentation of skin and nails, excessive eye discharge, swelling of eyelids, gastrointestinal disturbances and cancer. Examples of toxic symptoms in animals include weight and hair loss and reduced ability to reproduce. PCBs, formerly used primarily as insulators in electrical equipment, were banned in 1977 for future use.

Data indicating presence of PCBs or asbestos in the buildings to be demolished at Parnassus Heights is not available; however, given the age of the buildings proposed for demolition, there is a possibility of encountering these contaminants during demolition. These contaminants could cause health risks to the construction workers and the community.

Mitigation Measure 4F-5. (Less Than Significant). UCSF would implement measures for safe handling and proper disposal of asbestos and PCBs during demolition of the buildings at Parnassus Heights. These measures would include: completing site assessments for the presence of asbestos; preparation of an Abatement and Demolition Project Specifications Plan by a California-certified asbestos consultant; and completing site assessments for presence of PCBs in electrical equipment and removal of any PCBs in accordance with requirements of Title 40 of Code of Federal Regulations.

UCSF would implement the following measures to avoid significant effects from potential presence of asbestos and PCBs in buildings to be demolished.

- UCSF would hire contractors to conduct environmental site assessments for determining the presence of asbestos in the buildings to be demolished. If the study indicates presence of asbestos in the building materials, a state-licensed asbestos abatement contractor registered by Cal-OSHA would be hired to remove all asbestos-containing building materials (ACBM) prior to demolition of the buildings. The contractor would manage asbestos materials in accordance with Cal-OSHA, EPA, the Department of Toxic Substances Control (DTSC), and BAAQMD regulations. Building materials that contain greater than one percent asbestos are regulated by BAAQMD and DTSC. BAAQMD enforces the EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP) rule with respect to releases of asbestos to the environment. DTSC is concerned with the transportation and disposal of ACBM waste. Cal-OSHA regulates ACBMs with an analytical result greater than 0.1 percent asbestos by weight when worker health and safety is an issue.

- An Abatement and Demolition Project Specifications Plan would be prepared by a California-certified asbestos consultant for use by the abatement contractors. A Site Safety Plan would be required from the contractors and would be in place prior to commencing work on any contaminated structure or building.
- UCSF would hire contractors to conduct environmental site assessments for determining the presence of PCBs in the buildings to be demolished. The buildings would be inspected to identify the light fixtures that have PCBs in the ballasts. Removal and disposal of light fixtures with PCBs would be conducted in accordance with the federal regulations contained in Title 40 of Code of Federal Regulations for handling materials with PCBs. PG&E would locate and test on-site transformers for PCBs. All transformers with PCBs would be removed prior to demolition.

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1. Margaret Marcoccia, University of California San Francisco, letter to Barry Chin, University of California San Francisco, March 27, 1995.
 2. Todd Woody, "Political Science," *The Recorder*, February 21, 1996.
 3. Ellen Perlman, "Dancing Around," *Environment*, August 1995.
 4. Steve Ginsberg, "Radioactive Waste Turns Heat on Biotech Industry," *Business and the Environment*, November 3-9, 1995.
 5. Edgar D. Bailey, Chief, Radiologic Health Branch, California Department of Health Services, *South Carolina Legislature Adjourns Without Extending Access to Barnwell*, Radiation Safety Bulletin 94-1, June 3, 1994.
 6. Asbestosis is a disease of the lungs caused by the inhalation of asbestos fibers, an irritant mineral.
 7. Bendix Environmental Research, Inc., *Hazardous Materials/Public Health and Safety, Bayside Phase III Facilities*, May 3, 1994.
 8. Philip H. Abbleson, "The Asbestos Removal Fiasco," *Science*, Number 4946, Volume 247, March 2, 1990.

G. GEOLOGY AND SEISMICITY

1. SITE-SPECIFIC SETTING

This section discusses the geologic characteristics and the potential geo-seismic hazards of the Parnassus Heights site. Mitigation of potential hazards is provided by the University Policy on Seismic Safety (see Chapter 3, Section G).

a. Site Characteristics

Numerous geotechnical investigations have been made at the Parnassus Heights site since the early 1930s.¹ Recent investigation for the 1984 Vision Research Laboratory Building incorporated information from many of those earlier studies and provided new site-specific data about portions of the site.²

The Parnassus Heights site slopes steeply down to the north at gradients ranging from 25 to 45 percent. Most UCSF buildings are located on the Parnassus shelf, between +375 feet and +425 feet msl. Sub-surface materials at the Parnassus Heights site consist of artificial sandy fill and unconsolidated, compact marine sand, silt, and clay (ranging in thickness from less than 1 foot to more than 70 feet) overlying Franciscan chert, shale, sandstone and greenstone (altered volcanic rocks).³

Typically, building sites along Parnassus Avenue are underlain by less than 20 feet of sandy fill, 25 to 35 feet of Colma formation sand, and Franciscan chert.⁴ Sites along Medical Center Way typically are underlain by Franciscan chert, but many contain 15 to 20 feet of sandstone or 30 feet of greenstone. The sandstone and chert generally are hard and sound, providing adequate support for foundations. The greenstone generally is fractured (sheared), weathered and altered to clay minerals, making it prone to landsliding.⁵

b. Geo-Seismic Hazards

The potential geologic and seismic hazards at Parnassus Heights can be summarized as follows:

- The site is within the City of San Francisco's Special Geologic Study Area for potential ground failure hazards caused by landsliding, and site-specific slope stability studies are required prior to development.
- The site would be exposed to earthquake-related groundshaking strong enough to damage buildings and infrastructure, possibly resulting in personal injury and loss of life.
- Groundshaking forces could cause soil and sub-surface materials at the site to slide, thereby damaging structures supported on them.

- Construction at the site could create wind or water erosion of sandy soil or fill materials during excavation.
- Activities at the site could concentrate population in a seismically hazardous area.
- The site is not in or near an Alquist-Priolo Earthquake Fault Zone.

To provide a standardized approach for responding to geo-seismic hazards, the University Policy on Seismic Safety was established to ensure that new and renovated University structures would comply with the most stringent seismic code requirements applicable to the site (see Chapter 3, Section G, of this EIR).⁶

2. IMPACTS AND MITIGATION MEASURES

Each of the impacts identified in this section would be considered a potentially significant impact of implementing the LRDP at Parnassus Heights unless it is addressed by one or more of the policies in the University Policy on Seismic Safety or the San Francisco Building Code. Implementing the policies in the University Policy on Seismic Safety would reduce significant impacts of the LRDP activities at Parnassus Heights to a less-than-significant level.

Impact 4G-1. Life Safety Hazard (Project/Less Than Significant). Demolition of existing buildings that do not meet current seismic codes and construction of new buildings at Parnassus Heights, as well as addressing seismic and code deficiencies in other buildings, would reduce seismic hazards for a portion of the Bay Area population working at, or visiting, the site.

The demolition of UC Hall, the MR IV building and other older buildings at Parnassus Heights used for research, service and housing programs would remove seismically inadequate structures from the site. All new construction under the LRDP would meet the more stringent of seismic construction requirements of the State Building Code or the San Francisco Building Code. In addition, the LRDP proposes to address seismic and code deficiencies in other structures at Parnassus Heights and possibly at Laguna Honda School. Construction of new buildings and upgrading of existing buildings at Parnassus Heights under the LRDP would include site-specific geotechnical investigation and design for each new or retro-fitted structure, as well as an integrated emergency response plan, as required by the University Policy on Seismic Safety and applicable building codes. This would prevent the population at the site from overburdening San Francisco's emergency response systems in the event of a major seismic occurrence. Compliance with these policies, which are included as part of the LRDP, would reduce potential seismic safety hazards to a less-than-significant level.

Mitigation Measure 4G-1. (Less Than Significant). None required.

Impact 4G-2. Seismic Groundshaking (Project/Less Than Significant). New buildings and infrastructure constructed under the LRDP at Parnassus Heights would be subject to violent seismically-induced groundshaking and potential ground failures (landsliding, lateral spreading, settlement) during a major earthquake in the San Francisco Bay Area.

The LRDP provides for the demolition or upgrading of seismically inadequate buildings at Parnassus Heights. New construction at Parnassus Heights would comply with the Seismic Zone 4 Standards of the San Francisco Building Code (Chapter 23) and would be reviewed by UCSF's Consulting Structural Engineer. Bracing and anchorage would be designed to meet Life Safety Objective 1 in the San Francisco Community Safety Element. Compliance with these policies, which are included as part of the LRDP at Parnassus Heights, would reduce the potential seismic groundshaking impacts to a less-than-significant level.

Mitigation Measure 4G-2. (Less Than Significant). None required.

Impact 4G-3. Static Ground Failure (Project/Less Than Significant). Buildings and infrastructure located on loose soil or fill would be subject to static ground failures (differential settlement, landsliding), if the soils became saturated by groundwater or runoff.

Designs for new or reconstructed buildings at Parnassus Heights would comply with the applicable building codes and would be reviewed by UCSF's Consulting Structural Engineer. Compliance with these policies, which are included as part of the LRDP for the Parnassus Heights site, would reduce the potential static ground failure impacts to a less-than-significant level.

Mitigation Measure 4G-3. (Less Than Significant). None required.

Impact 4G-4. Soil Erosion During Construction (Construction/Less Than Significant). Demolition, excavation and construction activities associated with LRDP implementation at Parnassus Heights could increase soil erosion and sedimentation by wind or water.

Excavation and landscaping designs would comply with the San Francisco Building Code Standards for drainage and earthwork (Chapter 70) and would be reviewed by UCSF's Consulting Structural Engineer. The designs of new construction would include site-specific erosion and sedimentation control plans to reduce or eliminate the risk of unintentional soil transportation and deposition during construction activities. Compliance with these policies, which are included as part of the LRDP at Parnassus Heights, would reduce the potential erosion impacts to a less-than-significant level.

Mitigation Measure 4G-4. (Less Than Significant). None required.

1. The following EIRs provide information on geo-seismic conditions and impacts at Parnassus Heights.

University of California San Francisco, *1982 Long Range Development Plan Final Environmental Impact Report*, SCH No. 81102003, September 1982, pp. 109-112.

University of California San Francisco, *Vision Research Laboratory Building Final Environmental Impact Report*, SCH No. 83091307, June 1984, pp. 48-53 and Appendix 6 pp. F-1 – F-6.

University of California San Francisco, *Campus Library Final Environmental Impact Report*, SCH No. 86012808, June 17, 1986, pp. 88-93.

University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*, SCH No. 93013064, January 5, 1994, pp. 23-25.
2. University of California San Francisco, *Vision Research Laboratory Building Final Environmental Impact Report*, SCH No. 83091307, June 1984, pp. 48-53 and Appendix 6 pp. F-1 – F-6.
3. J. C. Schlocker, *Geology of the San Francisco North Quadrangle, California*, United States Geological Survey, Professional Paper 782, Washington, D.C., 1974, pp. 93-99 and Plates 1 & 2.
4. University of California San Francisco, *Campus Library Final Environmental Impact Report*, SCH No. 86012808, June 17, 1986, pp. 88-93.
5. University of California San Francisco, *Vision Research Laboratory Building Final Environmental Impact Report*, SCH No. 83091307, June 1984, pp. 48-53 and Appendix 6 pp. F-1 – F-6.
6. University of California, Office of the President, *University Policy on Seismic Safety*, revised January 17, 1995.

H. HYDROLOGY AND WATER QUALITY

1. SITE-SPECIFIC SETTING

There are no surface water bodies or public water supplies in close proximity to Parnassus Heights. The Mount Sutro watershed drains into the stormwater drainage system on the Lower Campus Shelf. No aquifers or groundwater recharge areas have been specifically identified at the Parnassus Heights site, and no known groundwater contamination issues are associated with the site. Sewer and stormwater runoff from Parnassus Heights is treated at the Southeast Water Pollution Control Plant and at the Oceanside Water Pollution Control Plant.

2. IMPACTS AND MITIGATION MEASURES

Impact 4H1-1. Erosion and Sedimentation of the San Francisco Bay (Construction/Significant). Construction areas at Parnassus Heights may be subject to erosion, which could increase sedimentation in the San Francisco Bay during wet weather.

Construction activities at the Parnassus Heights site, particularly in the nine-acre Aldea housing parcel, could generate increased erosion and sedimentation during wet weather. Site grading and cut and fill operations could increase concentration of suspended solids in the sewer system. Erosion could also occur from soil stockpiles on a construction site. In addition, other construction activities, including truck and heavy equipment traffic, tend to spread soil onto surrounding roads and walkways, where it could be washed into storm drains and could result in sedimentation and obstruction of flow in the storm drains. Increases in suspended solids may affect the beneficial uses of the San Francisco Bay and could contribute to exceedances of water quality objectives, as set forth in the *Water Quality Control Plan for the San Francisco Bay Basin*. Therefore, this impact would be significant prior to mitigation.

Mitigation Measure 4H1-1. (Less Than Significant). UCSF would prepare a construction Storm Water Pollution Prevention Plan that includes at least the following Best Management Practices to control stormwater quality on-site. UCSF's construction contracts would require contractors to implement the Plan. Implementation would reduce the impact to a level that is less than significant.

The Best Management Practices of the Stormwater Pollution Prevention Plan would address the following issues:

- Minimizing the area and length of time that any construction site is cleared and graded.
- Preventing the release of construction activity pollutants such as cement mortar, paints and solvents, fuel and lubricating oils, pesticides and herbicides.

- Installation of filter fences and/or hay bales to slow water and remove sediments, planting grasses, or covering soil with stabilizing coatings or plastic sheeting to minimize erosion of dirt storage piles.
- Installation and maintenance of sediment and grease traps in local stormwater intakes during the construction period and cleaning of wheels and covering of loads of trucks carrying excavated soils before they leave construction sites.
- Implementation of a hazardous material spill prevention, control and cleanup program.

I. VEGETATION AND WILDLIFE

This section describes the existing vegetation and wildlife at Parnassus Heights and then assesses the potential for the LRDP to adversely affect significant biological resources at the Parnassus Heights site. As described in Chapter 3, Section I, these resources include endangered, rare or threatened species formally listed in federal or state Endangered Species Acts, or other sensitive species and habitat of concern to responsible agencies.

1. SITE-SPECIFIC SETTING

The Parnassus Heights site is located within a developed urban area. The site is divided into two distinct areas for purposes of vegetation and wildlife analysis. One is the Lower Campus Shelf developed with UCSF's institutional infrastructure and buildings, while the other, the 61 acre Mount Sutro Reserve, is a forested area located on the slopes and hilltop of Mount Sutro on the south side of the Parnassus Heights site.

There is no evidence of existing sensitive habitat (including wetlands), sensitive species, natural native plant communities or wildlife habitat, or rare or endangered species on the Parnassus Heights site, including the Mount Sutro Reserve. This conclusion was reached after the following steps:

- a review of the California Natural Diversity Data Base (CNDDB);¹
- a field survey; and ²
- a review of a California Native Plant Society list of plants observed in the vicinity of Mount Sutro.³

Further, no such species or habitat would be expected to occur in the developed portion of the Parnassus Heights site because the site's natural environment has been highly altered by prior development. No such species or habitat would be expected to occur in the Mount Sutro Reserve due to the predominance of the non-native eucalyptus tree forest, except for the possibility of bats, some of which are sensitive species. Although one of the habitats of bats is forests with tall trees, no bats were observed during the field survey nor were any sightings recorded in the CNDDB.

The developed portion of the Parnassus Heights site and surrounding City streets contain ornamental trees, shrubs and landscape materials such as blue-gum eucalyptus (*Eucalyptus globulus*), Monterey cypress (*Cupressus macrocarpa*), Blackwood acacia (*Acacia melanoxylon*) and pittosporum (*Pittosporum undulatum* and *P. crassifolium*). In particular, the field survey did not reveal any natural native plant communities around the main UCSF buildings on the Lower Campus Shelf.

The Regents designated the Mount Sutro Reserve as permanent open space.⁴ The area supports a forest of non-native trees known as the Sutro Forest. Adolph Sutro planted the trees in November 1886 in celebration of San Francisco's first Arbor Day. Many of these blue-gum

eucalyptus trees are now more than 200 feet tall. The dense eucalyptus grove has replaced native shrubs and oaks which formerly grew on the slopes of Mount Sutro. The slopes of Mount Sutro provide habitat for wildlife species which are adaptable to varying environmental conditions and tolerant of human disturbance.⁵ No natural wildlife habitat is present because most of the plant species occurring in the Mount Sutro Reserve are non-native species.

2. IMPACTS AND MITIGATION MEASURES

Impact 4I-1. Sensitive Habitat and Species (Construction and Project/Less than Significant). The proposed demolition and building construction as well as other components of the LRDP at Parnassus Heights could not adversely affect sensitive habitat and species due to their absence from Parnassus Heights. Therefore, no impact, significant or otherwise, would occur.

As discussed above in the Site-Specific Setting, the Parnassus Heights site, including the Mount Sutro Reserve, does not contain sensitive habitat or species. As a result, the LRDP's proposed demolition and construction projects within the developed area of the Parnassus Heights site could not adversely affect sensitive habitat or species, and therefore could not have a significant impact. While the Aldea San Miguel Family Student Housing adjacent to the open space reserve on Mount Sutro would be demolished and rebuilt, the construction would occur within the existing building footprints. No sensitive species or habitat exists near the housing site. The LRDP does not propose any development or other activities in the Mount Sutro Reserve, and would maintain the Mount Sutro Reserve as permanent open space.

Mitigation Measure 4I-1. (Less Than Significant). None required.

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1. California Department of Fish and Game, Natural Diversity Data Bases, *Parnassus Heights Rarefind Report*, February 4, 1996.
 2. Lee Ellis, EIP Associates, June 21, 1994.
 3. Yerba Buena Chapter, untitled list, received June 1994, reviewed by Lee Ellis, EIP Associates.
 4. *The University of California San Francisco Draft 1996 Long Range Development Plan* contains a proposal to increase the designated area of the Mount Sutro Open Space Reserve to reflect recent surveying that found the area to contain 61 rather than 58 acres.
 5.
 - a) California Resources Agency, Department of Fish and Game, *At the Crossroads - 1980, A Report on California's Endangered and Rare Fish and Wildlife*, December 1980.
 - b) University of California San Francisco, *Vision Research Laboratory Building Final Environmental Impact Report*, SCH No. 83091307, June 1984.

J. PUBLIC SERVICES

1. SITE-SPECIFIC SETTING

The potential public service impacts of LRDP activities at Parnassus Heights on police, fire protection, parks and recreation, public schools and solid waste are related to a reduction in built space and changes in the UCSF population at the site.

Implementation of the LRDP would reduce gross square footage at the Parnassus Heights site by approximately 46,000 gsf.¹ The LRDP anticipates an increase in the average daily population at Parnassus Heights from about 15,400 to about 16,000, a net change of 600.² This increase in average daily population is comprised of a decrease of 424 employees, no change in student population, and an estimated increase in outpatients and visitors of 1,024. The net increase of 600 persons is generally used to estimate changes in population-related public service demands at Parnassus Heights.³

The employees who would leave Parnassus Heights would be relocated to existing UCSF sites or to the Major New Site. If they were to be relocated to existing UCSF sites, the employment-related public service demands associated with those employees would be expected to fall within the public service impact of those sites. If the employees were relocated to the Major New Site, those impacts would be included within the public service discussion in Chapter 12 of this EIR.

The following discussion of site-specific existing conditions at Parnassus Heights extends the discussion of existing conditions in the Public Service section of Chapter 3, Regulatory Background, Regional Setting, and Impact Methodology.

a. Police Protection

The UCSF Police Department (UCPD) provides police services to all UCSF sites, including Parnassus Heights. Institutional uses, such as UCSF, typically involve police services related to parking enforcement, traffic incidents, theft and occasional public demonstrations. Currently, the UCPD operates with 1.1 sworn police officers per 1,000 average daily population.⁴ As discussed in Chapter 3, Section J, a Memorandum of Understanding (MOU) between UCPD and the San Francisco Police Department (SFPD) confirms UCPD's responsibilities for all UCSF property and provides that the SFPD would provide mutual aid support to UCPD. The MOU also establishes mutual aid responsibilities when UCPD is called by the SFPD in areas within a one-mile radius of UCSF-controlled property. The Parnassus Heights site is located in the SFPD Park Police District. This district operates out of a station on Kezar Drive, approximately one-half mile northeast of Parnassus Heights.

b. Fire Protection

The San Francisco Fire Department (SFFD) provides fire-fighting services to the Parnassus Heights site. Station 12, approximately one-quarter of a mile east of Parnassus Heights at 1145 Stanyan Street, provides the first response to the site.⁵ Station 12 consists of one engine company and one truck company. The second response station would be Station 22, approximately three-quarters of a mile from the Parnassus Heights site. Station 22 is located at 1290 16th Street, with one truck company. The third response station would be Station 21, almost two miles from Parnassus Heights at Grove and Baker Streets, with one engine company. If necessary, Station 6, approximately 1.5 miles east of the site, would provide an additional engine company.

UCSF has recently installed a new comprehensive fire alarm system at the Parnassus Heights site. This new fiber optic system is expected to reduce substantially the number of nuisance calls to the SFFD from the Parnassus Heights site resulting from fire alarm device problems. Water availability and pressure are adequate for fire fighting purposes at the Parnassus Heights site.⁶

c. Parks and Recreation

UCSF maintains open space and recreation facilities at the Parnassus Heights site for its students, employees and visitors. These resources include undeveloped open space on Mount Sutro, developed plazas and walkways. Typically UCSF employees, students and visitors use park and recreation resources as lunch-time sitting areas and for other open space activities. In addition, UCSF provides indoor recreation facilities for student and employees uses which are popular and in high demand. Resources at Parnassus Heights appear adequate to meet UCSF demands, and use of San Francisco's neighborhood parks by UCSF employees and students would be expected to be minimal. As with other city and regional residents, UCSF employees and students would use Golden Gate Park, about three blocks north of the Parnassus Heights site, mostly on weekends.

d. Schools

The Parnassus Heights site is in the San Francisco Unified School District (SFUSD). In 1994, the SFUSD operated at approximately 96 percent of its available capacity. This enrollment level is projected to remain relatively constant through 2003. SFUSD has the capacity to accommodate approximately 2,735 additional students in grades K-12. Under the Allen Bill, non-resident employees working in San Francisco have the right to enroll their children in the SFUSD. School districts are required to accept such students, but they also have the discretionary authority to limit total Allen Bill transfers to control student enrollment relative to service capacity.

e. Solid Waste Disposal

The Sunset Scavenger Company collects non-hazardous wastes at the Parnassus Heights site under an agreement with UCSF. Other vendors collect chemical, radioactive and medical waste from UCSF medical and research facilities, and the handling and disposal of those wastes is addressed in Section F, Hazardous Materials. On the basis of the existing Parnassus Heights average daily population of approximately 15,400, annual solid waste generation at Parnassus Heights is approximately 2,500 tons, or about 0.2 percent of the total annual solid waste generated in San Francisco (1.027 million tons in 1990).⁷ The solid waste generated at UCSF is taken to the San Francisco Solid Waste Transfer and Recycling Center where currently, approximately 35 percent is diverted. The balance, approximately 1,625 tons annually, is transported to the Altamont Landfill in Alameda County for disposal, representing approximately 0.2 percent of the total solid waste that San Francisco currently disposes at Altamont Landfill (667,000 tons annually in 1990).

Under AB 939, the required solid waste diversion rate will be increased to 50 percent in 2000. Currently, UCSF does not have a facility-wide, on-site recycling program for its existing sites; however, UCSF is in the process of establishing such a program in conjunction with Golden Gate Disposal and Sunset Scavenger.⁸ Therefore, it is expected that by 2000, at least 50 percent of UCSF's solid waste would be diverted prior to disposal.

2. IMPACTS AND MITIGATION MEASURES

Impact 4I-1. Police Protection. (Project/Less Than Significant). The 600-person increase in ADP at Parnassus Heights under the LRDP would slightly increase demand on police services but would not affect response times of the UCPD for the highest priority personal security calls. This would not be a significant impact.

LRDP activities at Parnassus Heights would increase average daily population by 600 persons. Even with no increase in UCPD staff, this increase would not substantially reduce UCPD response times or available resources for the highest priority personal security calls, given the periodic nature of such incidents.

The projected increase in average daily population at the Parnassus Heights site would be expected to proportionately increase the overall UCPD service load for property and traffic-related incidents. Using the existing 1.1 patrol officers per 1,000 persons, the four percent increase in population would correspond to a demand for fewer than 0.5 patrol persons and associated support resources. Because the UCPD considers that it is currently operating at capacity, response times for the lowest priority incidents and tasks at Parnassus Heights may increase somewhat. One of the LRDP Goals is to maintain a safe environment at UCSF sites. As a result, it is assumed that UCSF would add UCPD staff if necessary to meet its stated goal of maintaining safe campus sites. This would not be a significant impact.

Mitigation Measure 4I-1. (Less Than Significant). None required.

Impact 4I-2. Fire Protection (Project/Less Than Significant). The reduction of 46,000 gsf of space at Parnassus Heights under the LRDP would decrease the potential for fire incidents but there could be an increase in medical emergencies related to the increased population projected under the LRDP. This would not be a significant effect.

LRDP activities at Parnassus Heights would decrease the potential for fire hazards based on reduced built space. New construction and life-safety upgrades at Parnassus Heights under the LRDP would include fire safety design and state-of-the-art fire alarm systems, which would further reduce fire service demand at the site. The LRDP includes a new, dedicated fire protection water supply distribution system which will increase the overall fire protection capacity at the site. The frequency of emergency medical calls to Station 12 could increase at Parnassus Heights because of the increase of 600 average daily population under the LRDP, but this increase would not cause SFFD to add resources and would not reduce response times below acceptable levels.

Mitigation Measure 4I-2. (Less Than Significant). None required.

Impact 4I-3. Parks and Recreation (Project/Less Than Significant). The reduction in UCSF employment at Parnassus Heights under the LRDP would decrease UCSF demand for and use of open space and recreational resources at Parnassus Heights and UCSF employee use of surrounding San Francisco park areas. This would not be a significant impact.

Given the accessibility to the various parks and recreational open space areas in the Parnassus Heights vicinity, including UCSF open space and Golden Gate Park, existing park and recreation space would be adequate to meet the recreational needs of the Parnassus Heights population under the LRDP. Therefore this would be considered a less-than-significant impact.

Mitigation Measure 4I-3. (Less Than Significant). None required.

Impact 4I-4. Schools (Project/Less Than Significant). Implementation of the LRDP at Parnassus Heights would reduce student housing by as many as 14 units and UCSF staff by 424 employees. Although these employees would be relocated to other UCSF sites in San Francisco, or to the Major New Site, no substantial change in student enrollments in San Francisco would be expected. This would not be a significant effect.

The LRDP proposes to reduce the number of student family housing units at the Aldea San Miguel Family Student Housing facility by approximately 40 units. This would be offset at least in part by a variety of conversions of some existing residential units being used for administrative purposes to either family student or student spaces. Completion of the LRDP also would reduce UCSF staff population at Parnassus Heights by an estimated 424 employees. The reduction in family housing and employee population at Parnassus Heights would decrease the number of school-aged children in the Parnassus Heights area.

The SFUSD is operating at 96 percent of capacity with existing resources. This level of enrollment is expected to remain constant through 2003. Currently, the SFUSD has the surplus capacity to accommodate approximately 2,735 additional students in grades K-12. Changes in school demand result primarily from changes in the number of family housing units in a given area and secondarily from changes in the number of employees in a given area.

It is likely that these student families from Aldea housing would relocate to other residential locations in San Francisco, and the 424 staff from Parnassus Heights would relocate to other UCSF sites in San Francisco, or the Major New Site. Because of the SFUSD enrollment policies that allow families to apply to send their children to schools outside their neighborhood, no substantial changes in enrollment in the SFUSD would be expected. This would not be a significant effect.

Mitigation Measure 4I-4. (Less Than Significant). None required.

Impact 4I-5. Solid Waste (Project/Less Than Significant). Implementation of 1996 LRDP activities at Parnassus Heights could increase solid waste generation by about 100 tons per year. This represents an increase of 0.003 percent of San Francisco's solid waste stream and would not be a substantial increase in local solid waste generation or require expansion of landfill capacity. This would not be a significant impact.

LRDP activities at Parnassus Heights would increase ADP by about 600 persons. On the basis of 1.25 lbs of solid waste generated per day per person, LRDP activities at the Parnassus Heights site would increase solid waste generation by up to 100 tons per year over the 2,500 tons per year currently generated at the site. After the year 2000, up to 50 percent of the solid waste would be expected to be recovered at the San Francisco Solid Waste Transfer and Recycling Center, and the remaining 50 tons would be disposed of at the Altamont Landfill in Alameda County. This increase in solid waste generation would be much less than one percent of the total amount of solid waste that San Francisco takes to the Altamont Landfill annually. This would not be a significant impact.

Medical waste is disposed in a different manner and is discussed in Chapter 3, Section F, Hazardous Materials.

Mitigation Measure 4I-5. (Less Than Significant). None required.

Impact 4I-6. Solid Waste (Construction/Significant). Demolition and construction activities at Parnassus Heights under the LRDP could increase solid waste flows to the Altamont landfill that might require substantial expansion of planned landfill capacity. This would be a significant impact.

LRDP activities at the Parnassus Heights site would generate demolition and construction waste. Conventional solid waste collection and disposal companies such as Sunset Scavenger and Golden Gate Disposal do not accommodate construction and demolition waste. As a

result, UCSF would need to contract with specialized solid waste haulers to transport the solid waste associated with demolition and construction activities at Parnassus Heights. In general, there is a lower diversion rate for recycling commercial/industrial construction and demolition waste than for other solid waste. Construction and demolition waste generated by LRDP activities at Parnassus Heights could contribute to the needs for expansion of planned landfill capacity. This would be a significant impact.

Mitigation Measure 4I-6. (Less Than Significant). UCSF would require demolition and construction contractors at the Parnassus Heights site to establish in their bids quantitative goals for the amount of recycling they plan to achieve, and to document periodically during each construction project that such goals have been achieved. This would reduce this effect to a less-than-significant level.

To reduce impacts to less than significant levels, UCSF will consult with the San Francisco Commercial Recycling Coordinators and require construction and demolition contractors to provide solid waste recycling plans as part of their bids. UCSF will seek to increase to the extent feasible the recycling of such solid waste during the LRDP's demolition and construction activities.

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1. University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996, Table 13: Space at Parnassus Heights Applicable to The Regents' 1976 Space Ceiling Limitation (gsf), p. 102. The LRDP's total gsf reduction would be 69,000 gsf, including approximately 23,000 gsf of existing office space, that will be converted to housing, yielding a net reduction of approximately 46,000 gsf in research space.
 2. This Total Average Daily Population includes employees, students, patients and visitors, *UCSF Population at All Sites Table*, UCSF Campus Planning Office, March 4, 1996.
 3. University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996, p. 80. A 1994 ADP of 15,400 less the reduction of 424 employees subtracted from the LRDP ADP ceiling of 16,000 yields a net increase of up to 1,024 in visitors and patients.
 3. Paul Fuhrman, Public Information Officer, San Francisco Fire Department, telephone conversation with EIP Associates, August 29, 1994.
 5. Paul Fuhrman, Public Information Officer, San Francisco Fire Department, telephone conversation with EIP Associates, August 29, 1994.
 6. Frank Fazzano, Superintendent of Fire Safety Systems, University of California San Francisco, telephone conversation with EIP Associates, August 29, 1994.
 7. Assuming an average solid waste generation of 1.25 pounds per person daily for 261 days per year (does not include weekends).
 8. Eugene Lau, UCSF Environmental Health & Safety Department, telephone conversation with Michelle Schaefer, Environmental Coordinator, University of California San Francisco, Office of Campus Planning, March 6, 1996.

K. UTILITIES AND INFRASTRUCTURE

1. SITE-SPECIFIC SETTING

This section analyzes the potential utility and infrastructure impacts of the 1996 LRDP at Parnassus Heights on water, wastewater, natural gas, electricity and energy. Chapter 3 contains general information on regulations, regional setting, standards of significance and impact methodology related to this analysis. The LRDP activities at Parnassus Heights could affect the demand for utility services through changes in the user population and reduction in occupied space.

The LRDP would reduce primarily research, clinical and administrative uses by approximately 46,000 gsf through a combination of demolition and new construction projects.¹ This would be a 1.5 percent reduction in the total 3,134,100 gsf of non-parking space currently on the Parnassus Heights site.² The LRDP would also convert to residential use approximately 23,000 gsf of space in residential structures currently used for office space. The reduction in space would reduce the employee population at Parnassus Heights by 424 employees. These employees could be relocated to space at Laurel Heights, UCSF/Mount Zion, another existing UCSF site or possibly the Major New Site. The LRDP assumes that the average daily population at Parnassus would increase to about 16,000 people, accounting for a decrease in staff, constant student enrollment and increased numbers of patients and visitors. Although the average daily population could increase by up to four percent, this increase in out-patients and associated visitors would be related to existing clinical care operations in existing space, and changes in utility and infrastructure demands from increased patients and visitors are expected to be minimal.

Under the 1996 LRDP the major change in utility and infrastructure demand at Parnassus would result from the proposed decrease in research, clinical and administrative space. Therefore, changes in utility and infrastructure demand related to residential use and to increased patients and visitors are not quantified further, and the analysis in this section focuses on changes in demand that could result from the decrease in occupied space at Parnassus Heights.

The site-specific impacts of additional staff and programs at either Laurel Heights or UCSF/Mount Zion have already been analyzed in the EIRs prepared and certified for their respective site-specific development programs.³ If the 424 Parnassus Heights employees were ultimately relocated to the Major New Site, they would be part of the new population whose impacts are analyzed in Chapter 12 of this EIR.

a. Water

The San Francisco Water Department (SFWD) supplies water in the city, including the Parnassus Heights site and other UCSF sites in San Francisco. In 1993, the Parnassus Heights site used 0.68 million gallons per day (mgd) of water, or 1.1 percent of the city's total average consumption of 63 mgd.⁴ The existing Power Plant used 0.03 mgd, the Long/Moffitt Hospitals

used 0.23 mgd, and the remaining 0.42 mgd was used by administrative, instructional, research and support services uses.

b. Wastewater

The City of San Francisco provides wastewater collection and treatment services for the entire city, including the Parnassus Heights site and other UCSF sites in San Francisco. Based on the current water demand estimate of 0.68 mgd at the Parnassus Heights site, the average wastewater generation at the site is approximately 0.62 mgd.⁵

c. Electricity

Electricity use at the Parnassus Heights site currently averages between 6 and 13 megawatts (MW) depending on the time of day. The existing UCSF power plant generates the majority of the electricity for Parnassus Heights, with the exception of approximately 1.6 MW which is purchased from PG&E during peak use hours.⁶ UCSF is currently constructing a Central Utilities Plant to replace the existing plant and meet UCSF's future energy demand. The new plant, projected to be completed in 1997,⁷ will include new, larger PG&E electrical feeder cables to the site and equipment to generate and distribute steam, electricity and emergency power. The plant will fully meet UCSF's need for electricity throughout the 1996 LRDP planning period and eliminate the need to purchase electricity from PG&E. The Central Utilities Plant will provide the following services:

- increase steam generation capacity from 250,000 to 260,000 pounds per hour;
- increase electrical cogeneration capacity from 1.6 MW to 10-12 MW;
- increase total electrical service capacity from 12 MW to 25 MW; and
- add an additional 6 MW of emergency electrical generation capacity.

d. Natural Gas

PG&E supplies natural gas to the City of San Francisco, including the Parnassus Heights site and other UCSF sites in San Francisco. PG&E anticipates no current or future service provision problems for natural gas supply and distribution.⁸ Four boilers in the existing power plant consume the majority of natural gas at the Parnassus Heights site. In 1992, the four boilers used a total of approximately 780 million cubic feet (cf) of natural gas annually, or an average of 2.1 million cf daily. Three emergency generators use approximately 10,000 cf annually. Natural gas consumption from all uses at the Parnassus Heights site was less than 0.2 percent of the total natural gas consumed in PG&E's service area.

The new Central Utilities Plant will include two gas turbines that are expected to consume approximately 1.2 billion cf of natural gas annually, two duct burners that would consume about 0.5 billion cf annually, and one standby boiler that would consume approximately 0.2 billion

cf of natural gas annually, for a total project demand of approximately 1.9 billion cf of natural gas annually, an increase of nearly 140 percent over the existing consumption of approximately 0.8 billion cf. The total projected demand at buildout of the Central Utilities Plant would account for approximately 0.4 percent of the total natural gas consumed in PG&E's service area in 1994.

2. IMPACTS AND MITIGATION MEASURES

This section does not assess potential cumulative utilities and infrastructure impacts because the LRDP would result in reduced utility demands at Parnassus Heights. As a result, LRDP activities at Parnassus Heights would not create adverse changes that could combine with adverse effects of other reasonable foreseeable projects to create potentially significant cumulative impacts.

Impact 4K-1. Water Demand (Project/Less Than Significant). LRDP activities at the Parnassus Heights site would reduce water demand. Therefore, this would not be a significant impact.

The LRDP proposes to reduce research, clinical and administrative space at Parnassus Heights by approximately 46,000 gsf.⁹ UCSF staff would be reduced by 424 persons. On the basis of the 1.5 percent reduction in gsf at Parnassus Heights, it is expected that water demand would be reduced by about 10,200 gpd. This would reduce total water demand at Parnassus Heights from 0.68 mgd to 0.67 mgd. The reduction in water demand associated with the reduction in space at Parnassus Heights would be partially offset by the anticipated increase in patients and visitors under the LRDP. However, the overall water demand at Parnassus would be expected to decrease as a result of the LRDP, and therefore, this would be a less than significant impact.

Mitigation Measure 4K-1. (Less Than Significant). None required.

Impact 4K-2. Water Distribution Infrastructure (Project/Less Than Significant). Demolition and new construction activities and utility improvements at Parnassus Heights under the LRDP would result in routine improvements to the on-site water distribution infrastructure. These changes would not require substantial improvements that would adversely affect the environment; therefore, the distribution impact would be less than significant.

Because implementation of the LRDP would be expected to reduce water demand at Parnassus Heights, no off-site infrastructure improvements would be necessary. However, the LRDP calls for the systematic upgrade of utilities at Parnassus Heights, including fire protection and water systems at Parnassus Heights. In addition, during demolition and replacement building construction at Parnassus Heights, some alterations and improvements to infrastructure would

be necessary. These infrastructure changes would not require substantial expansion of the distribution system at Parnassus Heights and would not have substantial effects on the environment. Therefore, this would not be a significant impact.

Mitigation Measure 4K-2. (Less Than Significant). None required.

Impact 4K-3. Wastewater Treatment (Project/Less Than Significant). The LRDP at Parnassus Heights would reduce wastewater flows and treatment demand. This would be a less than significant impact.

Based on wastewater flows at 90 percent of water use and the anticipated 1.5 percent reduction of water use at Parnassus Heights under the LRDP, wastewater flows would be reduced by about 9,200 gpd. This could reduce total wastewater generation at Parnassus Heights from 0.62 mgd to approximately 0.61 mgd.

Mitigation Measure 4K-3. (Less Than Significant). None required.

Impact 4K-4. Wastewater Collection and Transport Infrastructure (Project/Less Than Significant). The LRDP would require some routine improvements to wastewater collection infrastructure at the Parnassus Heights site. These routine changes would not require substantial expansion of the collection system. This would not be a significant impact.

The existing wastewater collection and transport infrastructure at the Parnassus Heights site is adequate for the current wastewater flow generated at the site. Because wastewater flow would decrease under the LRDP, no major off-site improvements to wastewater collection and transport infrastructure would be necessary. However, the LRDP calls for systematic upgrade of utilities at Parnassus Heights. In addition, demolition and replacement activities would require some minor infrastructure changes. These infrastructure changes would not require substantial collection system improvements. The impact would be less than significant.

Mitigation Measure 4K-4. (Less Than Significant). None required.

Impact 4K-5. Electricity Supply (Project/Less Than Significant). LRDP activities would reduce demands on electricity at Parnassus Heights. This would not be a significant effect.

Based on the proposed reduction of research, clinical and administrative space at Parnassus Heights under the LRDP, demand for electricity from UCSF users could decrease by about 1.5 percent.

Mitigation Measure 4K-5. (Less Than Significant). None required.

Impact 4K-6. Electricity Distribution Infrastructure (Project/Less Than Significant). The LRDP would require some routine improvements to electrical systems. Therefore, this would not be a significant impact.

The LRDP calls for systematic upgrade of utilities at Parnassus Heights. The new Central Utilities Plant at Parnassus Heights, which is currently under construction, will substantially increase electrical supply at Parnassus Heights.¹⁰ Electrical distribution systems to research laboratories would be upgraded as part of the 1996 LRDP. In addition, demolition and construction activities at Parnassus Heights would require some alterations and improvements to infrastructure. The overall effects of these improvements will be more efficient uses of electricity at Parnassus Heights.

Mitigation Measure 4K-6. (Less Than Significant). None required.

Impact 4K-7. Natural Gas Demand (Project/Less Than Significant). LRDP activities would reduce natural gas demand from PG&E at Parnassus Heights. This would be a less than significant impact.

Based on the proposed reduction in space at Parnassus Heights under the LRDP, it is anticipated that natural gas demand at Parnassus Heights could decrease by about 1.5 percent.

Mitigation Measure 4K-7. (Less Than Significant). None required.

Impact 4K-8. Natural Gas Distribution Infrastructure (Project/Less Than Significant). The LRDP would require some routine on-site improvements to the natural gas distribution system. These changes would not require substantial improvements to the distribution system. This would not be a significant impact.

The LRDP calls for the systematic upgrade of utilities at Parnassus Heights. In addition, demolition and construction activities at Parnassus Heights would require some alterations and improvements to the natural gas infrastructure. The overall effects of these improvements will be more efficient uses of natural gas at Parnassus Heights.

Mitigation Measure 4K-8. (Less Than Significant). None required.

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1. University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996, Table 13: Space at Parnassus Heights Applicable to The Regents' 1976 Space Ceiling Limitation (gsf), p. 102. The LRDP proposes to demolish 242,000 gsf of predominantly research, clinical and administrative space. It proposes to construct 196,000 gsf of predominantly academic support and logistical space, with some research and administrative space. Therefore, the combination of demolition and construction projects would yield a net reduction of 46,000 gsf in research, clinical and administrative uses.

2. University of California San Francisco, *Draft 1996 Long Range Development Plan*, March, 1996. Table 9: Parnassus Heights Existing Space Profile, p.77.
3. a) University of California San Francisco, *Mount Zion Hospital and Medical Center Proposed Integration Agreement Final Environmental Impact Report*, January 1990.
b) University of California San Francisco, *Revised Laurel Heights Plan Final Environmental Impact Report*, SCH No. 95033072, September 6, 1995.
4. University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Draft Environmental Impact Report*, August 6, 1993, p. 8-1.
5. University of California San Francisco, Campus Planning Office, *Draft 1996 Long Range Development Plan*, March 1996. This estimate assumes wastewater generation at 90 percent of metered water usage. For derivation of this method see Gordon Maskew Fair, John Charles Geyer and Daniel Alexander Okun, *Water and Wastewater Engineering*, 1966.
6. University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Final Environmental Impact Report*, SCH No. 93013064, January 5, 1994, p. 9-2.
7. University of California San Francisco, Campus Planning Office, telephone conversation with William Woo, EIP Associates, February 8, 1996.
8. Jim Crane, Industrial Power Engineer, Pacific Gas & Electric Company, telephone conversation with William Woo, EIP Associates, February 15, 1996.
9. University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996, Table 13: Space at Parnassus Heights Applicable to The Regents' 1976 Space Ceiling Limitation (gsf), p. 102. The LRDP's total gsf reduction would be 69,000 gsf, including approximately 23,000 gsf of existing office space which will be converted to housing, yielding a net reduction of approximately 46,000 gsf in research space.
10. University of California San Francisco, *Parnassus Heights Central Utilities Plant Project Draft Environmental Impact Report*, August 6, 1993, p. 9-9.

L. VISUAL QUALITY

1. SITE-SPECIFIC SETTING

This section addresses the existing physical appearance of the Parnassus Heights site and its environs in relation to views of, and views from the existing facilities. The potential effects of changes proposed in the LRDP on the scale and intensity of development at Parnassus Heights are discussed and impacts related to shadow, light and glare are analyzed.

Parnassus Heights, the largest of UCSF's sites, occupies about 107 acres on the northern slope of Mount Sutro, which descends over 800 feet from its summit to Parnassus Avenue and Carl Street and Irving Street. Due to the steep slopes of Mount Sutro, the developed portion of the site is limited to approximately 46 acres on the lower shelf of Mount Sutro. The other 61 acres of the site are reserved as open space. In general, the intensively developed areas of Parnassus Heights are visible from many short-range and long-range viewpoints against the background of the eucalyptus-forested slopes of Mount Sutro.

The developed portions of Parnassus Heights include: the Aldea parcel, the Woods parcel, and the Lower Campus Shelf, as described below.

a. Aldea Parcel

The Aldea parcel is a nine-acre area near the summit of Mount Sutro, accessible from Clarendon Avenue or Medical Center Way. The parcel is heavily wooded with eucalyptus and various other species of trees. Uses include the UCSF Chancellor's Residence and the 165-unit Aldea San Miguel Family Student apartments. The trees and topography tend to screen views of the buildings from nearby streets, the rest of Parnassus Heights and long-range views.

b. Woods Parcel

The Woods parcel is near the eastern boundary of Parnassus Heights about midway between the Aldea parcel and the Lower Campus Shelf. The Woods parcel, approximately four acres, consists of the Environmental Health & Safety building, the Surge and Woods Buildings, surface parking and modular containers for Environmental, Health & Safety supply storage. The Woods parcel is in a heavily wooded area, with trees screening much of the views of the buildings and parking facilities.

c. Lower Campus Shelf

The Lower Campus Shelf is a 33-acre area on the lower hillside of Mount Sutro along both sides of Parnassus Avenue, with some development descending to Carl Street and Irving Street. The character of this portion of the site is urban, with densely placed buildings ranging in height

from one to 16 stories. The scale and massing of buildings greatly contrasts with the forested setting of Mount Sutro and with the surrounding residential neighborhoods (see Figure 2-2, in Chapter 2, Project Description). Existing residential areas of the adjacent Inner Sunset neighborhood contain primarily one- to three-story houses and flats, with multi-story apartment buildings further to the west.

d. Views

The elevation of Mount Sutro and height of Parnassus Heights buildings result in unobstructed views to and from the site. Selected on- and off-site viewpoints are keyed in Figure 4-6, and photos of the viewpoints are shown in Figures 4-7 to 4-9.

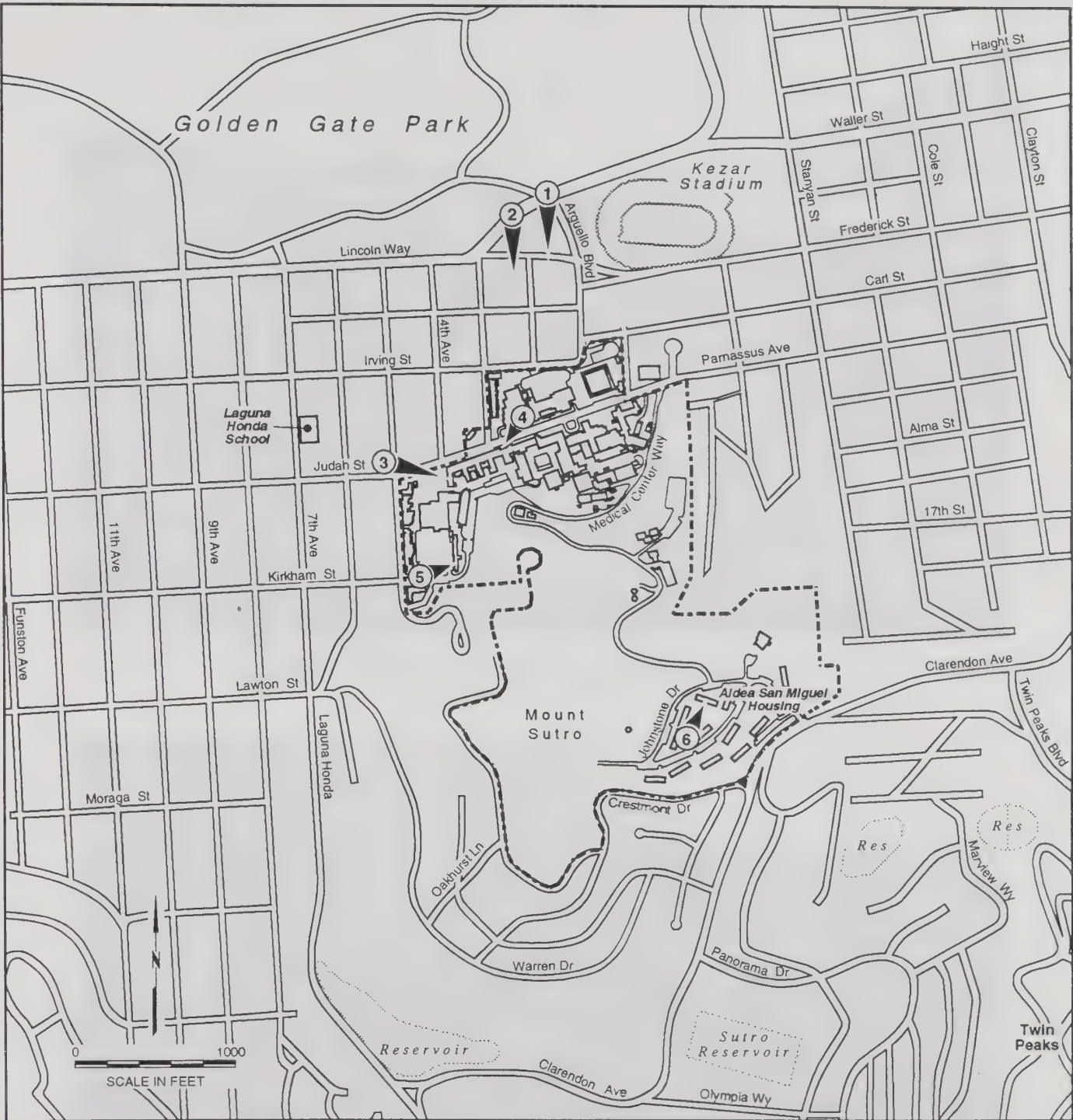
Views Of The Site

Due to the elevation of Parnassus Heights, middle-ground views of the site are available from city streets, neighborhoods and parks to the north and west. In Golden Gate Park to the north, relatively unobstructed views of the site are available from points along Kezar Drive, Martin Luther King, Jr. Way and other open spaces in the park (see Figure 4-7). More distant views of the site are available from the Upper Haight area to the northeast near Stanyan Street.

Short-range views of the Parnassus Heights site are available from Parnassus Avenue and Judah Street (Figure 4-8). The tall buildings of the Lower Campus Shelf area, as well as portions of Mount Sutro, are prominent from these locations. Short- and mid-range views of the site include uphill views from the Irving Street area. Low-rise buildings on the Lower Campus Shelf, as well as structures in the Aldea and Woods parcels are not generally visible from nearby areas (see Figure 4-9). Because of the proximity of residential areas to Parnassus Heights, private views of UCSF buildings are available from windows or decks of residences located primarily north and west of the site, such as along Irving Street, and Third, Fourth and Fifth Avenues.

Views From The Site

Expansive views of much of the city, San Francisco Bay, the Pacific Ocean, Golden Gate Bridge and the Marin Headlands are available from Parnassus Avenue near Millberry Union and the Library, and from further up hill at the Westside Parking Lot. Views from the Aldea parcel near the summit of Mount Sutro, and from the Woods parcel, are limited because of the heavy vegetation. Views of Mount Sutro from Parnassus Avenue are also limited because of the height and density of existing buildings on the Lower Campus Shelf.



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA and HGHB, UCSF LRDP—Existing Conditions Report, September 1992.

LEGEND

▲ Arrow Shows Direction of Photo View



Photo 1: View to the south of Parnassus Heights, including 350 Parnassus Avenue, ACC, and Moffitt/Long Hospitals, from Golden Gate Park near Kezar Drive



Photo 2: View to the south of Parnassus Heights, including Moffitt/Long Hospitals, Millberry Union, and UC Hall



Photo 3: View to southeast of UC Hall and Mount Sutro, near 5th Avenue and Judah Street



Photo 4: View to southwest of UC Hall, at Parnassus Avenue east of 3rd Avenue



Photo 5: View to the east of Medical Research IV building



Photo 6: View of Aldea San Miguel Student Housing

e. Site-Specific Standards and Methods

San Francisco Master Plan, City and County of San Francisco

The *San Francisco Master Plan* includes policies with regard to views and visual quality. The policies most relevant to LRDP activities at Parnassus Heights are contained in the Urban Design Element and in the Recreation and Open Space Element of the *Master Plan*. Relevant aspects of these policies are summarized below.

Policies 1 through 5 of the City Pattern section of the Urban Design Element relate to the appearance of buildings and landscaping, and their total effect that characterizes the various city districts. These policies also recognize and protect major views in the city, with particular attention to those of open space. Policies 4, 5 and 6 of the Conservation section of the Urban Design Element address notable landmarks of aesthetic or other importance, as well as respect for the character of nearby older development in the design of new buildings. The Major New Development section of the Urban Design Element, Policies 1 through 7 relate to building design and visual relationship between new and established development. Policies 12, 13 and 15 of the Neighborhood Environment section of the Urban Design Element include requirements for protecting livability and character of neighborhoods from intrusion of incompatible new development.

The Sunlight Ordinance

The Sunlight Ordinance (also known as Proposition K) prohibits the issuance of building permits for structures over 40 feet in height that would cast new shadows on property under the jurisdiction of the Recreation and Park Commission, or property designated for acquisition by the Commission. Permits may be granted if the City Planning Commission determines that no significant adverse shading impacts would occur. UCSF is constitutionally exempt from Proposition K, but it would use the ordinance as a basis for evaluating shadow impacts.

The Sunlight Ordinance would apply to development under city jurisdiction near Golden Gate Park and Kezar Meadows; the Interior Park Belt west of Stanyan Street near the eastern boundary of Parnassus Heights; and Grattan Playground, at Stanyan and Rivoli Streets. However, those parks are 500 feet to 1,000 feet or more from the Parnassus Avenue buildings, and would not be affected by proposed LRDP development at the Parnassus Heights site.

2. IMPACTS AND MITIGATION MEASURES

Implementation of the LRDP at Parnassus Heights would include demolition of several structures and replacement with similar scale or smaller scale buildings, as well as demolition of other structures without replacement. As described in the LRDP Goals and Objectives document, proposed UCSF development at Parnassus Heights would respond to applicable elements and policies regarding visual and urban design in the *San Francisco Master Plan*. Physical changes anticipated to occur at the site under the LRDP would not be expected to increase shadows beyond those currently cast by existing campus buildings because new

construction would occur generally within existing building footprints and be of similar or reduced scale compared to existing buildings, except in the case of the Parnassus Services Building, which will be much taller than the existing Power Plant but set back so that shadows will fall on UCSF property.

No existing viewsheds, to or from the Parnassus Heights site, would be blocked or otherwise impaired by the new construction and other LRDP activities. The demolition and replacement of buildings would change some of the scale and intensity of the site, but these changes would occur within already developed areas, leaving most existing views unchanged. In certain cases, viewsheds may be changed, as with the removal of UC Hall and replacement with a smaller structure, which would provide a new landscaped plaza and open space area off of Parnassus Avenue. This would reduce the overall massing of buildings seen in views from the northwest. All effects discussed below reflect all LRDP activities at the Parnassus Heights site. Because no specific building designs have been prepared yet for the Medical Research (MR) IV and UC Hall replacement buildings, this analysis assumes that those structures would be up to five stories in height, would contain up to 45,000 to 60,000 gsf of space each, and would be located on or near the existing building footprints. Actually, the LRDP proposes that the gross square footage of new buildings on the MR IV and UC Hall sites total about 85,000 gsf, although this amount could be distributed in various ways. For example, if the UC Hall site were developed with a 60,000-gsf building, the MR IV site would be a 25,000-gsf building. In addition, consistent with the LRDP Goals and Objectives, it is assumed that both structures would comply with the *San Francisco Master Plan* and Planning Code.

Impact 4L-1. Alteration of Parnassus Heights Appearance and Character (Project/Less Than Significant). Implementation of the LRDP at Parnassus Heights would alter the appearance of the site as viewed from surrounding areas, and from within the site itself. Because the LRDP involves demolition of buildings and replacement with similar scale buildings, or demolition of others without replacement, this would be considered a beneficial visual impact because the LRDP would result in more open space and less intensive development and smaller scale buildings.

As described in Chapter 2, Project Description, under the LRDP, the Surge and Woods Buildings, and the Laboratory of Radiobiology would be demolished and not replaced. The Proctor building would also be demolished and the site would be considered as a potential site for new housing. The two-story, 12,000-gsf MR IV Building, east of Fifth Avenue, would be demolished and replaced with a new research building assumed to be three to four stories in height, and with up to 45,000 gsf. MR I/II, the Central Services Building and Medical Research Annexes, would be demolished to make room for the Parnassus Services Building. The six-story, 147,000-gsf UC Hall on Parnassus Avenue would be demolished and replaced with a smaller research and instructional facility up to five stories in height, and with up to 60,000 gsf. As noted above, the total gross square footage of the new buildings on the MR IV and UC Hall sites would be 85,000 gsf, which could be distributed in various ways. Aldea San Miguel housing would be demolished and replaced with residential structures on the same floorplates and of the same total floor area. The LRDP considers options to remove or to demolish and rebuild buildings at 374 and 735 Parnassus Avenue, 1308-10 Third Avenue, 1486-88 Fifth Avenue and 145 Irving Street with similar-scale residential buildings.

The following visual changes could result from these LRDP projects:

The demolition and replacement of UC Hall would be highly noticeable, changing long- and short-range views along Parnassus Avenue and from Mount Sutro above. The change would also be discernible in long-range views from Golden Gate Park. Visual changes that would occur from the removal of UC Hall include the replacement of an older architectural design with a newer, smaller-scale building and creation of a new landscaped plaza and open space area. The loss of the architectural resource of UC Hall is addressed in Section M, Cultural Resources.

The replacement of the MR IV building with a larger building would not be prominent in long-range views. The replacement would be visible from private residential buildings on Fifth and Sixth Avenues, and along Judah Street, resulting in minor changes in visual conditions.

Because of its location behind Moffitt/Long Hospitals, the proposed Parnassus Services Building would not be noticeable in short- or long-range views. The replacement of the Aldea San Miguel Family Student Housing would result in a small-scale change in visual conditions, most of which would not be visible in the long-range, and no changes in off-site views.

The renovation or replacement of the small buildings at 374 and 375 Parnassus Avenue, 1308-10 Third Avenue, 1486-88 Fifth Avenue and 145 Irving Street with similar-scale residential buildings would also result in small-scale visual changes at their respective locations. Demolition of the Surge, Woods and Radiobiology Buildings would result in opening some limited short-range views at Parnassus Heights. These would not be readily discernable to off-site viewers.

Although the changes in appearance at Parnassus Heights would be noticeable, new structures would be built in accordance with Building Design guidelines of the LRDP's Goals and Objectives. Although the specific design of proposed new structures is not developed at this time, the Building Design guidelines are intended to create a visual character that respects the form of adjacent buildings, landscaping and overall urban context of Parnassus Heights. Because the proposed LRDP changes at Parnassus Heights would generally reduce the intensity of overall development and be consistent with the existing visual character of the site, LRDP activities at Parnassus Heights would not result in significant visual impacts.

Mitigation Measure 4L-1. (Less Than Significant). None required.

Impact 4L-2. Increased Light and Glare (Project/Significant). New development at Parnassus Heights under the LRDP could have the potential to increase amounts of light and glare in the area. This would be a significant impact.

Glare can be generated by reflections from pavement, vehicles and reflective building materials. New light sources at Parnassus Heights could include street lights, exterior safety lighting and light emitted from building windows. Because specific architectural features of the new or renovated buildings, or the specific building materials to be used, are not yet determined, the proposed improvements could have the potential to include reflective surfaces, such as metal and glass. The resultant glare could affect nearby residential areas, Parnassus Heights

occupants, pedestrians and passing motorists. Although outdoor lighting plans are not yet available, increased lighting could induce similar effects at Parnassus Heights and adjacent areas. However, outdoor lights will enhance public safety.

The new MR IV building could increase light and glare because the new building will be larger than the existing MR IV, although the use would remain the same. The new UC Hall building would be smaller than the existing UC Hall building, and would be expected to be a proportionately lesser source of light and glare. In general, new development within existing urbanized areas on the scale proposed for Parnassus Heights under the LRDP would not be considered a significant environmental impact. Building orientation and landscaping could be used to reduce glare and light emissions.

Mitigation Measure 4L-2. (Less than Significant). Minimize light and glare from LRDP development at Parnassus Heights through the orientation of buildings, use of landscaping and use of primary facade materials with low-glare potential. The following design standards and guidelines are recommended to minimize light and glare:

- Avoid use of glass walls and mirrored glass walls as primary building materials for facades.
- Configure exterior light fixtures to emphasize close spacing and lower intensity light. Light fixtures will utilize luminaires that direct light downward.

By adopting appropriate design and minimizing the quantity of reflective material used in the new construction and renovations at Parnassus Heights, potential impacts from light and glare would be reduced to less than significant levels.

Impact 4L-3. Construction Night Lighting (Construction/Significant). Construction of the LRDP improvements at Parnassus Heights could increase area flood lighting at night. This would be a short-term significant impact.

Although construction operations are expected to take place during the day, some activities could be conducted at night in order to reduce noise, vibration or other effects to surrounding uses (e.g., areas near daytime office or research uses and away from residential uses). To continue construction activities during the night, flood lighting would be required. The use of night lighting would have the potential to disturb residents at Parnassus Heights or in nearby neighborhoods. Night lighting of construction sites would be a temporary situation that would cease upon completion of construction.

Mitigation Measure 4L-3. (Less Than Significant). Construction plans would include specifications for the placement and direction of any construction area or flood lighting to minimize potential disturbances to adjacent residents.

M. CULTURAL RESOURCES

1. SITE-SPECIFIC SETTING

a. Archaeological Resources

No archaeological resources are known to occur at Parnassus Heights, and the likelihood of such resources is considered low.¹ Therefore, no further discussion of archeological resources is warranted.

b. Architectural Resources

The Parnassus Heights site was founded in 1865 and is the oldest and largest of the sites that now constitute UCSF. The site includes several buildings that were built 50 years ago (see Table 4-11). None of these buildings have been previously evaluated for eligibility for the National Register of Historic Places, and none are listed on the Register. None of the buildings have been designated as state or local landmarks or are listed as architectural resources by the City of San Francisco.² One building that would be affected by implementation of the LRDP at Parnassus Heights and that may have architectural significance is described below.³

University of California Hall

University of California Hall (UC Hall), formerly known as University of California Hospital, was completed in 1917. It represents the Beaux-Arts style which influenced the rebuilding of the city in the 1906 post-Earthquake era. UC Hall is often described as a handsome structure, finely proportioned and richly detailed with terra-cotta ornament in a Renaissance style. The projecting window bays of the original two-story surgery suites give the building a distinctive facade. The building also houses Toland Amphitheater, which displays murals (painted by Bernard Zakheim in 1936-1938) depicting the history of California medicine.

The architect of UC Hall, Lewis Hobart (1873-1954), was one of a group of San Francisco architects who attended L'École des Beaux Arts in Paris. He is known for several eclectic designs in the Bay Area including Grace Cathedral, the former Union Oil Building on Rincon Hill, Macy's at Union Square, other post-1906 Earthquake downtown buildings and mansions in Hillsborough.

TABLE 4-11
UCSF PARNASSUS HEIGHTS BUILDINGS AT LEAST 50 YEARS OLD

Year Built	Building	Predominant Use
1909-20	Avenue Houses and Other Owned Buildings	Housing and Offices
1915	735 Parnassus Avenue	Medical Administration and Logistics
1915	745 Parnassus Avenue	Administration
1917	UC Hall	Research Facilities and Offices, Clinics and a Large Auditorium
1925	374 Parnassus Avenue	Administration and Clinical
1931	Heating Plant	Support Services
1933	Clinical Sciences	Teaching, Research and Administration
1940	Medical Research Annex I	Support Services and Administration
1940	Medical Research I & II	Research and Animal Care Facilities and Administration
1941	Langley Porter Psychiatric Institute	Patient Psychiatric Care, Community Health Services and Research
1944	Medical Research IV	Administration and Research

Source: University of California San Francisco, University Advancement and Planning, *Existing Conditions Report: A Technical Reference on Physical Planning, September 1992*, pp. 33-35.

2. IMPACTS AND MITIGATION MEASURES

Impact 4L-1. Demolition of UC Hall (Construction/Less Than Significant). Demolition of UC Hall would destroy a structure built in 1917.

UC Hall is not considered a significant architectural resource. It is not designated as a state or city landmark and is not listed on the National Register. However, because UC Hall is the work of a well-known San Francisco architect, Lewis Hobart, UCSF would prepare photographic and other documentary records of the building prior to demolition. In addition, as part of the LRDP implementation, UCSF would remove and preserve the Zakheim murals in Toland Hall and reuse them in a new building at Parnassus Heights. Demolition of UC Hall therefore, would not be considered a significant impact.

Mitigation Measure 4L-1. (Less Than Significant). None required.

Impact 4L-2. Demolition of the Medical Research (MR) IV Building, Surge Building or Woods Building (Construction/Less Than Significant). Demolition of the MR IV Building, Surge Building or Woods Building would destroy structures more than 50 years old.

Of the older buildings listed in Table 4-11, the MR I/II, the Medical Research Annex I, the MR IV and the Heating Plant buildings are proposed for demolition under the LRDP. The buildings at 735 Parnassus and 374 Parnassus are proposed for conversion to, or demolition/replacement by, housing. In addition, two newer buildings, the Surge Building and the Woods Building would be demolished. None of these buildings are considered to be architectural resources because none are listed as state or city landmarks and none are architecturally distinguished. Thus, demolition of these structures would not be considered a significant impact.

Mitigation Measure 4L-2. (Less Than Significant). None required.

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1. University of California San Francisco, *1982 Long Range Development Plan Final Environmental Impact Report*, SCH No. 81102003, September 1982, p. 116.
 2. National Park Service, *National Register of Historic Places*, Index of Listed Properties, February 2, 1994.
 3. University of California San Francisco, University Advancement and Planning, *Existing Conditions Report: A Technical Reference on Physical Planning*, September 1992, pp. 33-35.

N. POPULATION, EMPLOYMENT, AND HOUSING

1. SITE-SPECIFIC SETTING

This section analyzes population, employment, and housing changes resulting from implementation of the LRDP at Parnassus Heights. The average daily population at the Parnassus Heights site includes faculty, staff, students, patients and visitors. The 1995 average daily population at Parnassus Heights totalled approximately 15,400 people, of which about 6,550 were faculty and staff (after adjusting for absences), about 3,600 were students (including enrolled and postdoctoral students), 2,570 were patients, and 2,680 were visitors.¹

Three UCSF-controlled facilities at Parnassus Heights house 350 students, or about 14 percent of the 2,588 enrolled students (excluding residents and interns).² The Aldea San Miguel Family Student Housing consists of 165 one- to two-bedroom apartments, providing housing for 165 enrolled students and families. The Turk Boulevard Apartments, located about one and one-half miles from the Parnassus Heights site, have 12 units and accommodate 65 students. The University Residence Program, or Avenue Houses, consists of 17 buildings on Kirkham Street, Third Avenue and Fifth Avenue, accommodating 120 enrolled students. Additionally, UCSF uses seven residential spaces on Fifth Avenue for new faculty in transition and visiting faculty, and four residential spaces on Kirkham Street for guest lecturers and researchers.

2. IMPACTS AND MITIGATION MEASURES

Impact 4N-1. Employment (Project/Less Than Significant). Implementation of the LRDP at Parnassus Heights would reduce UCSF employment by 424 persons. This would not be a significant impact.

Under the LRDP, gross square footage devoted to research uses at Parnassus Heights would decrease and UCSF employment would be reduced by 424 persons. The UCSF employees would be relocated to one of UCSF's other existing sites or to the Major New Site.

Mitigation Measure 4N-1. (Less Than Significant). None required.

Impact 4N-2. Population (Project/Less Than significant). Under the LRDP, the average daily population at Parnassus Heights would increase to 16,000 persons. This would not be a significant impact.

Currently, the average daily population at Parnassus Heights is 15,400. The LRDP recognizes the principle of controlling the population at Parnassus Heights by establishing a goal of limiting the average daily population to 16,000 persons. With the reduction of 424 UCSF employees, the new population at Parnassus Heights would be made up of patients and visitors. No substantial concentration of population would result.

Mitigation Measure 4N-2. (Less Than Significant). None required.

Impact 4N-3. Housing Supply (Project/Less Than Significant). Implementation of the LRDP at Parnassus Heights could reduce UCSF-controlled housing by up to 14 units. This would not be a significant impact.

The LRDP contains a number of proposals related to housing at Parnassus Heights. Implementation of these proposals could reduce slightly the number of UCSF housing units in the Parnassus Heights area. This reduction would result primarily from the replacement of the 165-unit Aldea San Miguel Family Housing units with 125 larger family units, totaling the same floor area on that site. The reconstruction of this housing would address major code, infrastructure and functional deficiencies, and enable UCSF to provide child care facilities, recreation and parking on-site.

Other LRDP housing proposals would create new housing units in the Parnassus Heights area. Conversion or demolition and replacement of UCSF property in the Parnassus Heights area would create new residential space for students, faculty or for short-term use by families of UCSF patients. Because new housing units could accommodate single students, student families or faculty, this conversion or replacement would create between 26 and 40 residential spaces. Student family and faculty spaces would be larger in size but fewer in number than single student spaces. Therefore, there would be either no net change in housing spaces at the Parnassus Heights site, or a loss of 14 spaces with implementation of the LRDP proposals. Sufficient rental units are available in the Parnassus Heights market area to accommodate this small additional housing demand.

In addition, LRDP implementation would reduce UCSF employment by 424 persons at Parnassus Heights. These employees would relocate to other UCSF sites. Depending on the location of the UCSF site and whether the relocated employees rented in the Parnassus Heights area, it is possible that some employees would vacate housing units in the Parnassus Heights vicinity.

Mitigation Measure 4N-3. (Less Than Significant). None required.

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1. University of California San Francisco, Office of Campus Planning, March 1990.
 2. University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996, Table 52: Total Projected UCSF Student Housing at LRDP Buildout, p. 210.

UCSF/Mount Zion

Chapter 5: UCSF/Mount Zion

A. SETTING

The UCSF/Mount Zion Hospital and Medical Center currently occupies approximately 520,000 gross square feet (gsf) in owned and leased space on eight blocks in the Western Addition area of San Francisco. Much of the space is located on the main hospital block between Post and Sutter Streets. Given the compact nature of the site, existing development is moderately dense, with buildings up to eight stories tall.

The hospital became part of the UCSF campus in March 1990 when The Regents certified the *UCSF/Mount Zion Hospital and Medical Center Proposed Integration Agreement Environmental Impact Report*, and approved the Integration Agreement with Mount Zion Health Systems. As part of the Integration, UCSF proposed short-range (1990 to 1996) and long-range (1997 to 2010) development programs for UCSF/Mount Zion, and amended the 1982 LRDP to identify Mount Zion as a UCSF site and to incorporate the development programs.

Subsequent to the 1990 Integration, further project planning studies resulted in proposed changes to the original short-range development program for UCSF/Mount Zion. The *UCSF/Mount Zion Program Revisions and Associated Building Projects Subsequent Environmental Impact Report (SEIR)* was prepared to identify significant impacts not analyzed in the previous 1990 EIR which could result from specific changes in the revised development program at UCSF/Mount Zion. The *SEIR* was certified by The Regents in November 1992, and the 1982 LRDP was further amended to incorporate the revised UCSF/Mount Zion program.

The *SEIR* serves as both a Program EIR for the overall UCSF/Mount Zion program revisions and as a Project EIR for certain capital projects, specifically construction of the Research Building, the acquisition of new Medical Office Buildings and construction of the Outpatient Cancer Center. The Research Building, currently under construction, is expected to be completed in September 1996. Two new Medical Office Buildings will be completed, one in mid-1996 and another in late 1997.

B. 1996 LRDP AT UCSF/MOUNT ZION

The LRDP proposal for UCSF/Mount Zion involves the continued implementation of the development programs at UCSF/Mount Zion contained in the 1990 and 1992 Amendments to the 1982 LRDP, modified as described in the Draft 1996 LRDP and as analyzed in this EIR. The development program consists of two phases: the short-range program through 1996, and the long-range program from 1997 through 2010.

1. SHORT-RANGE DEVELOPMENT PROGRAM

The short-range development program, projected to add approximately 294,400 gsf of UCSF-owned space at UCSF/Mount Zion, was initiated in 1990 and is nearing completion. It includes several major new construction projects which address UCSF program needs, such as a new 109,000 gsf Research Building at 2340 Sutter Street; a 44,200 gsf medical office building at 2330 Post Street; and a second medical office building of 52,500 gsf at 1701 Divisadero Street. Some parking also has been developed to meet part of the projected demand resulting from increased UCSF uses under the short-range program. Patient valet parking on the main hospital block provides for up to 50 vehicles, and the 1701 Divisadero project includes underground parking for 157 vehicles.

The short-range program analyzed in the 1992 *SEIR* also called for an Outpatient Cancer Center to be created in a new five-story, 89,000 gsf building on the main hospital block. As part of the UCSF/Mount Zion development programs, the existing Pavilion Buildings (J1 and J2) were retained for use as an interim Cancer Center and for future surge space during construction and reconstruction on buildings on the main hospital block. The Medical Center intends to continue current operations in the J2 Building interim Cancer Center, and it has postponed the start of construction of the new Outpatient Cancer Center and central utility plant, as well as the demolition of the Hellman 'C' Building. These projects will be integrated into the long-range development program at UCSF/Mount Zion to coincide with overall long-term planning for patient care facilities on the main hospital block.

Completion of the Research Building, the two medical office buildings and other minor alterations will result in approximately 205,000 gsf of new UCSF/Mount Zion space. This is about 108,000 gsf less than was projected in 1992 for UCSF/Mount Zion development under the short-term program. The projected requirement for parking spaces in 1992 was 370 spaces. Approximately 210 new spaces will be developed at UCSF/Mount Zion by 1997.

2. LONG-RANGE DEVELOPMENT PROGRAM

The approved UCSF/Mount Zion long-range development program (1997 through 2010) calls for modernizing and expanding the main hospital block by replacing the existing 'A' Building and 'B' Building that comprise the Main Hospital in two phases: a Phase I new hospital and administrative building of up to 200,000 gsf and a Phase II hospital and administrative building of up to 250,000 gsf. In addition, several projects originally anticipated to be constructed in the UCSF/Mount Zion short-range development program have been delayed and would be considered in the UCSF/Mount Zion long-range development program in connection with UCSF's long-term patient care management planning. These projects are listed as follows:

- **Outpatient Cancer Center Building.** Construct a new five-story, 89,000 gsf Outpatient Cancer Center on the site of the former 'H' Building on the main hospital block in accordance with the 1990 and 1992 Amendments to the 1982 LRDP.

- **Circulation.** Construct a new pedestrian entry concourse to the 'R' Building fronting Divisadero Street and a new vestibule, elevator and corridor link in the 'B' Building to provide a pedestrian circulation link between the new Outpatient Cancer Center, 'B' and 'R' Buildings.
- **Infrastructure.** Improve existing infrastructure systems at UCSF/Mount Zion which are currently inadequate to support additional development approved and planned on the main hospital block, including heating, ventilation, chilling and electrical systems. Based on utility demands and economics, UCSF may build an Interim Utility Plant in a modular structure on the main block to serve the new Outpatient Cancer Center and other buildings on the main block, or UCSF may develop a new permanent central utility plant on or off the main block.

Other projects anticipated to be accomplished in the UCSF/Mount Zion long-range development program include:

- **Parking.** Provide additional parking at UCSF/Mount Zion to meet the parking demand from UCSF/Mount Zion staff projected for the long-range development program through leasing of existing off-street parking spaces, and study the development of a new parking garage in the UCSF/Mount Zion vicinity off of the main block.
- **'C' Building (Hellman Building).** If UCSF requires additional inpatient capacity in the early 21st Century, demolish the Hellman 'C' Building to allow construction of new hospital facilities on the main block in accordance with the 1990 and 1992 Amendments to the 1982 LRDP.
- **'E' and 'G' Buildings.** If UCSF requires additional inpatient capacity in the early 21st Century, demolish the 'E' and 'G' Buildings, which are considered obsolete due to their age, condition and unsuitability for retrofitting to meet contemporary standards, to allow construction of new hospital facilities on the main block in accordance with the 1990 and 1992 Amendments to the 1982 LRDP.
- **New Hospital Building.** If UCSF requires additional inpatient capacity in the early 21st Century, construct a new hospital building in two phases on the main block in accordance with the 1990 and 1992 Amendments to the 1982 LRDP.

As UCSF continues to integrate UCSF/Mount Zion with Parnassus Heights clinical facilities during the UCSF/Mount Zion long-range development program, UCSF may need additional medical office space beyond the total of 129,000 gsf anticipated in the 1992 Amendment to the 1982 LRDP. This increased need could arise in part because the demolition of UC Hall at Parnassus Heights under the 1996 LRDP would require relocation of clinical practices out of UC Hall. These practices, which total about 15,000 gsf, could be assigned to UCSF/Mount Zion when UC Hall is demolished.

UCSF has identified a need for approximately 40,000 gsf of additional medical office space beyond the 129,900 gsf of new medical office and replacement medical office space described in the 1992 SEIR. In 1992, it was estimated that about 79,000 gsf was needed for expanded medical office facilities at UCSF/Mount Zion and about 50,000 gsf of space was needed to replace the two buildings demolished on the site of the new Research Building. Currently, about 96,700 gsf of medical office space is in development.

In an effort to determine potential development sites for medical office space and parking in the UCSF/Mount Zion area in connection with preparation of the 1992 SEIR, UCSF issued a Request For Information (RFI) in 1991 to non-residential property owners in the UCSF/Mount Zion vicinity. UCSF conducted an initial screening of the RFI properties and gave further consideration to 12 sites before selecting 2330 Post and 1701 Divisadero (formerly 2400 Sutter) for development of medical office space. In connection with any additional development of medical office space near UCSF/Mount Zion, UCSF would review the remaining RFI properties for their potential to meet additional office and parking needs. Original RFI sites not owned by UCSF include 2150 Geary, 2201-2215 Post, 1515 Scott, 2233 Post, 2299 Post, 2351-61 Post, 2399 Post and 2420 Sutter. In addition to the RFI parcels, UCSF previously identified other properties not currently owned or leased by UCSF, such as the buildings at 2300 Sutter, 2320 Sutter, 1635 Divisadero and 2186 Geary, that could be developed or redeveloped for UCSF use. UCSF has not selected any site or sites for additional medical office space in the UCSF/Mount Zion area. However, UCSF expects to give further consideration only to properties that: 1) are not in residential use; 2) are of sufficient size to support UCSF's medical office and parking needs, either alone, or in combination with adjacent properties; and 3) are within one to two blocks of UCSF/Mount Zion.

The UCSF/Mount Zion long-range development program described in the 1990 Amendment to the 1982 LRDP and in the 1990 EIR is modified by the 1996 LRDP only with respect to changes in implementation of the UCSF/Mount Zion short-range development program before 1996, including the postponement of the new Outpatient Cancer Center, and with respect to the possible need for increased medical office space during the LRDP planning period. The total estimated staff, patients and visitors at UCSF/Mount Zion in the year 2010 which were projected in the 1990 EIR remain conservative estimates which probably overstate future population levels. Although UCSF/Mount Zion may require additional medical office space not anticipated in the 1992 SEIR, the total buildout of UCSF uses in the long-range development program of 1,162,000 gsf would continue to represent the outer envelope of UCSF development at UCSF/Mount Zion because any increase in medical office use would be offset by a comparable decrease in another proposed long-term use.

C. ENVIRONMENTAL EFFECTS

1. PREVIOUS ENVIRONMENTAL REVIEW

Information and analysis contained in the *UCSF/Mount Zion Hospital and Medical Center Proposed Integration Agreement EIR*, certified in March 1990, and in the *UCSF/Mount Zion Program Revisions and Associated Building Projects Subsequent EIR*, certified in November 1992, are incorporated by reference and summarized herein. Significant unavoidable

environmental effects (effects which could not be mitigated to a less-than-significant level) identified in those EIRs include: non-conformance with San Francisco City Planning Code regulations concerning floor area ratios, maximum use and lot size, and/or height and bulk limits; the casting of new shadows on Hamilton Recreation Center; project contributions to cumulative traffic increases in the vicinity of UCSF/Mount Zion; air quality emissions due to project-related traffic, on-site combustion of natural gas for space and water heating, and emissions generated off-site by electricity consumed at UCSF/Mount Zion; project contributions to cumulative criteria pollutant emissions; non-structural damage and risk to building occupants during seismic activity; and short-term noise levels during demolition of existing structures. All other impacts found to be potentially significant could be reduced to a less-than-significant level through the implementation of mitigation measures identified in the EIR which have been accepted by UCSF and which are included in the UCSF /Mount Zion *Mitigation Monitoring Program*. Because the environmental effects of the LRDP proposals for UCSF/Mount Zion have been fully analyzed in previous environmental documentation for that site, no further discussion of those impacts is required in this EIR. The discussion below focuses on the potential environmental effects associated with UCSF's potential increased need for medical office space during the LRDP planning period.

2. LAND USE

The UCSF/Mount Zion site is in the Western Addition area of San Francisco. The UCSF/Mount Zion vicinity includes commercial, retail, medical and residential uses. If UCSF acquired additional medical office space in the vicinity, it could result in further expansion of the land area proposed for potential UCSF/Mount Zion use if the location chosen was not one of the potential UCSF development sites adopted in the 1992 Amendment to the 1982 LRDP. To meet any potential need, UCSF could acquire, by purchase or lease, an existing medical office building or could construct new medical office space. This could result in UCSF uses replacing existing medical or related uses in the area. A number of potential development sites are currently occupied in part by UCSF/Mount Zion uses. Therefore, potential increased use of existing medical office space by UCSF would not result in a change in use or character in the UCSF/Mount Zion area, and this increase in land use for institutional purposes would be considered a less-than-significant impact. It is possible that some existing practitioners in the area could be displaced as a result of UCSF uses and would need to relocate. This could be considered a significant land use impact if adequate replacement space did not exist to accommodate displaced uses. However, this is considered unlikely because the Kaiser Permanente San Francisco Medical Center, whose Geary Campus is about one block southwest of UCSF/Mount Zion, is currently planning to develop a net additional 600,000 gsf of medical office and administrative space under its update to its Institutional Master Plan (Geary Campus Project). Development of the Kaiser plan, together with UCSF/Mount Zion LRDP activities, would intensify these land uses, but would not change the overall elements of Medical Center land uses in the vicinity.

3. TRANSPORTATION AND PARKING

a. Traffic

LRDP activities at UCSF/Mount Zion would not be expected to affect traffic in the vicinity. Three of the four major new construction projects approved in 1992 are underway. Upon completion, staff, patient and visitor levels at UCSF/Mount Zion would be the same or less than projected in 1990. In addition, because UCSF/Mount Zion space projected for 2010 would remain the same even if UCSF increased its medical office space use, it would not be expected that traffic generated from UCSF/Mount Zion uses would vary substantially from that analyzed in the 1990 EIR. Net trip generation and impacts to intersection operations and regional roadway systems, would be the same as discussed in the 1990 EIR. In the UCSF/Mount Zion long-range development program, a shift in circulation patterns would be expected to occur in the UCSF/Mount Zion vicinity. Kaiser Medical Center's current plans call for replacement and expansion of medical office and administrative space, for a net increase of approximately 600,000 gsf. Buildout of Phase I of the Kaiser/Medical Center's expansion would occur by the year 2000 and buildout of Phase II would occur by the year 2010. As part of the project, Kaiser would vacate existing leased medical office space adjacent to UCSF/Mount Zion. The 1990 EIR projected a one-percent annual cumulative growth factor in order to consider potential future development, such as that from Kaiser. Therefore, any shift in circulation patterns that could result from implementation of the LRDP at UCSF/Mount Zion would be within the year 2010 traffic conditions previously analyzed and would therefore be less than significant.

b. Parking

The 1992 SEIR determined that the demand for parking spaces in the UCSF/Mount Zion vicinity under the short-range development program would be a significant impact until and unless off-street parking was provided by UCSF to adequately satisfy overall demand. It was estimated that 300 staff spaces and 70 visitor spaces would be required to meet anticipated demand. UCSF is currently developing some parking in the UCSF/Mount Zion vicinity, including approximately 50 valet parking spaces for visitors and 157 staff and visitor parking spaces in sublevels below the 1701 Divisadero Street Medical Office Building. With these spaces, the projected demand for visitor parking at UCSF/Mount Zion would be met and no additional visitor spaces would be required prior to completing additional projects under the long-range development program. However, demand for staff parking would continue to exceed supply until additional UCSF parking is created.

The demand for parking in the UCSF/Mount Zion long-range development program was projected to be 510 additional staff spaces and 35 additional visitor spaces. During development of the UCSF/Mount Zion long-range development program, UCSF would conduct periodic surveys of its staff, patients and visitors to determine UCSF-related demand and also would monitor occupancy of existing parking facilities. UCSF would seek to provide sufficient parking to satisfy the deficit due to the short-range development program and new parking demand from the long-range development program. In addition to the possible locations for parking garages identified in 1992, additional parking could be developed to the east of the main

hospital block by a UCSF-affiliated organization. A preliminary proposal under consideration calls for development of up to 230 new spaces which could be leased by UCSF.

Furthermore, at full buildout of the UCSF/Mount Zion long-range development program in the year 2010, it is projected that Kaiser would complete its Geary Campus Project and would vacate existing leased space adjacent to UCSF/ Mount Zion. The Kaiser plan proposes substantial off-street parking for its uses. Parking which is currently occupied by Kaiser staff and visitors then would be available for reuse by UCSF users. However, demand for staff parking would continue to exceed supply until additional UCSF parking is created.

4. CUMULATIVE EFFECTS

The overall presence of UCSF with other cumulative neighborhood uses was analyzed in the 1992 *SEIR*. Although the Kaiser expansion plans were not known at that time, it was assumed that a one-percent annual growth rate would address further unforeseen development in the vicinity. The City and County of San Francisco, as the Lead Agency, is currently conducting environmental review of the Kaiser project. Cumulative effects of Kaiser development with other existing and planned projects, including UCSF/Mount Zion, would be analyzed in that EIR. While the Kaiser development would increase medical institutional uses in the UCSF/Mount Zion vicinity, this would not change earlier conclusions of the 1992 *SEIR* with regard to UCSF/Mount Zion's contribution to cumulative land use, transportation and air quality impacts.

D. CONCLUSION

Although UCSF/Mount Zion may require additional medical office space not anticipated in 1992, the total buildout in the UCSF/Mount Zion long-range development program of 1,162,000 gsf would not change. The resulting space profile is shown in Table 5-1.

TABLE 5-1
UCSF/MOUNT ZION PROPOSED SPACE PROFILE (GSF)

Type of Space	Owned	Leased	Total	Percent of Total
Instruction	16,000	0	16,000	1%
Research	112,000	0	112,000	10%
Clinical	887,000	54,000	941,000	81%
Support:				
Academic Support	4,000	0	4,000	0%
Academic/Campus Admin.	9,000	5,000	14,000	1%
Campus Community	23,000	100	23,100	2%
Logistics	<u>50,000</u>	<u>1,900</u>	<u>51,900</u>	<u>5%</u>
Subtotal Support	86,000	7,000	93,000	8%
TOTAL^{1,2}	1,101,000	61,000	1,162,000	100%

Notes:

1. Excluding parking and housing.
2. It is assumed that at any given time some space will serve as vacant/alteration space to accommodate routine departmental moves and temporary vacancies during space operations.

San Francisco General Hospital

Chapter 6: San Francisco General Hospital

A. SETTING

San Francisco General Hospital (SFGH) is located in eastern San Francisco, in the Mission District (see Figure 2-5 in Chapter 2, Project Description). The SFGH site is generally bounded by US 101 to the north and east, 23rd Street to the south, and Potrero Avenue to the west.

The area immediately surrounding the site is primarily residential with some light industrial and manufacturing facilities. Neighborhood commercial uses line 24th Street west of Potrero Avenue, and Potrero Avenue near 24th Street. The residential uses adjacent to SFGH are a mix of single- and multiple-family homes.

As identified in Chapter 2, Project Description, the SFGH site consists of an array of buildings containing 1.3 million gross square feet (gsf) located on 21 acres of land (see Figure 2-5). SFGH is owned by the City and County of San Francisco, and the site supports a mix of activities operated by the city and county. The Main Hospital Building (Building 5), near the eastern edge of the site, houses the inpatient units, the emergency room, and administrative space. To the north of the Main Hospital is Building 100, which contains clinics, clinical labs, and UCSF research space. West of Building 100 is Building 3, which contains research labs of the Gladstone Institute of Virology and Immunology, pathology, and other support space. Buildings 1, 9, 10/20, 30/40 and 80/90 front Potrero Avenue and contain clinics, UCSF research labs, research labs of independent institutes, and some administrative and support space.

Recent physical changes at SFGH include the construction of three major building additions or buildings under the *1987 SFGH Institutional Master Plan (IMP)*. These projects include: an AIDS research center added to the top of Building 3 (the Gladstone Institute); the 185-bed, 90,000-gsf Mental Health (Skilled Nursing) Center; and Phase 1 (800 spaces) of a 1,200-space parking garage, under construction.

SFGH has occupied the site since 1872. The site has been extensively rebuilt or modernized on four occasions: 1915, 1928, 1954 and 1965. Many SFGH buildings built before 1928 have been demolished and replaced with more modern buildings.

B. PLANNING HISTORY

UCSF has maintained an affiliation with SFGH for over 120 years. In August 1994, UCSF renewed its relationship with SFGH in an "Affiliation Agreement" with the City and County of San Francisco. As a result of this Affiliation Agreement, UCSF maintains approximately 250 active staff physicians and about 553 courtesy staff physicians at SFGH. At any given time, approximately 100 UCSF medical students are working at SFGH. The postgraduate medical

training program includes another 300 students. UCSF faculty train about 800 interns and residents each year who rotate through SFGH at various times in 17 residency programs.

UCSF presently occupies about 174,100 gsf at SFGH, which includes both space leased by UCSF and space covered by the “exchange agreement” between UCSF and SFGH. The exchange agreement provides UCSF clinical faculty at SFGH in exchange for SFGH providing space for the UCSF practitioners. The space occupied by UCSF generally consists of instruction, research, clinical, support and alteration/vacant uses.

In 1992, SFGH began work on a new Institutional Master Plan (IMP) to address its future development needs. SFGH is developing its plans separately from the LRDP, but it is coordinating its effort with UCSF in an attempt to meet the needs of both institutions. Although SFGH’s plans are not yet final, SFGH has identified some general goals for UCSF participation:

- Promote SFGH/UCSF collaboration in meeting clinical, teaching, research and public service missions.
- Plan the SFGH site to place most of the clinic space on the southerly portion of the site and most of the research and animal care space to the north.
- Improve internal circulation at the site.
- Reserve a building site, long-term, for a combined research/clinic facility to meet some of the research needs of the existing SFGH faculty now housed in Building 100.
- Provide additional research space, plus space for teleconferencing, teaching and animal care.
- Replace or rehabilitate the historic brick buildings over a period of time. Reuse them either for research, clinics, or a combination of such uses.
- Plan for upgrading the hospital in accordance with changing hospital code requirements.
- Provide parking commensurate with demand resulting from the program implementation.

SFGH also plans to address seismically vulnerable and obsolete buildings at the site. The City and County of San Francisco has determined that many of the structures at SFGH no longer meet current seismic code requirements. In addition to seismic deficiencies, some of the older buildings on the site in which UCSF currently leases space (Buildings 1, 9, 10/20, 30/40, 80/90 and 100) contain floorplates that are inefficient for modern uses, such as modern laboratories, clinics or office space. SFGH has not decided if those buildings will be reconstructed to meet current building codes and modern needs or will be demolished and replaced. UCSF would need to be moved into other SFGH structures, either temporarily or permanently. (Some rehabilitation and code corrections have already occurred in Building 1 to house UCSF’s Lung

Biology, Neuro-Biology and Neuro-Surgery units through the year 2014. Therefore, additional Building 1 replacements would be expected to occur in the latter phases of the proposed IMP implementation.

C. THE 1996 LRDP AT SFGH

A primary goal of SFGH planning is to continue to strengthen the SFGH/UCSF relationship with a proposal to provide new space at SFGH for UCSF use. Options under consideration for such space include the following:

- Develop a new building containing approximately 120,000 gsf of animal care, clinical care and laboratory research space on parking lot “A.”
- Provide additional wet laboratory space in Building 100 through demolition and replacement.
- Retrofit and infill part of the courtyard areas of the 10/20, 30/40 and 80/90 buildings to address seismic needs and provide additional research space.
- Address existing faculty needs for instructional support, libraries, child care, recreation and other support facilities.

The LRDP proposes that UCSF will maintain its activities as an affiliated institution at SFGH and develop up to 200,000 gsf of additional UCSF program space through some combination of development on parking lot “A” immediately west of Building 3, the Building 100 and the Building 10/20 sites. Under one possible approach, a new clinic and research building would be built on parking lot “A,” into which UCSF programs currently in Building 100 or Building 10/20 would move. Building 100 would then be demolished or rebuilt for new research space, or, in the alternative, Building 10/20 would be rehabilitated and the area between the main wings infilled to provide a modern floorplate for research uses. Building 10/20 is one of the brick-faced ward buildings, with classical ornamentation, fronting Potrero Avenue. This proposal would add additional research space, animal care, support, teleconferencing, instruction, and library space and some amenities such as a fitness room or child care area. Total UCSF space at SFGH would grow from about 174,100 gsf to about 375,000 gsf under the 1996 LRDP.

Under this approach, UCSF clinical space would either be absorbed into other SFGH space, leased off-site or provided through rehabilitation of other brick buildings fronting Potrero (80/90, 10/20, 30/40) at some later time. The net increase in UCSF space at SFGH under the LRDP would accommodate existing UCSF staff and activities to meet decompression and consolidation needs at SFGH, as well as accommodating about 260 net new UCSF staff, in addition to the existing UCSF staff. The proposed space profile at SFGH under the 1996 LRDP is summarized in Table 6-1.

TABLE 6-1
UCSF PROPOSED SPACE PROFILE AT SFGH

Type of Space	GSF	Percent of Total
Instruction	20,000	5%
Research	228,000	61%
Clinical ¹	1,000	0%
Support:		
Academic Support	40,000	11%
Academic/Campus Administration	38,000	10%
Campus Community	30,000	8%
Logistics	<u>17,100</u>	<u>5%</u>
Subtotal Support	125,000	34%
Housing	0	0%
TOTAL²	374,000	100%

Notes:

1. Clinical space in Building 100 would be absorbed into existing SFGH space or added back beyond the time frame of the LRDP.
2. It is assumed that at any given time some space will serve as vacant/alteration space to accommodate routine departmental moves and temporary vacancies during space alterations.

Source: University of California San Francisco, *Draft 1996 Long Range Development Plan*, March 1996.

D. ENVIRONMENTAL EFFECTS OF LRDP AT SFGH

During 1993-1994, SFGH developed a proposal to lease a SFGH site to a private developer to finance and construct a 120,000-gsf clinical and biomedical research building on parking lot "A". The proposed building was to be built to UCSF specifications, to accommodate part of UCSF's identified space need at SFGH. The location, proposed use and projected population of that building is consistent with elements of the LRDP at SFGH. The City and County of San Francisco Department of City Planning as Lead Agency conducted environmental evaluation of the proposed building and adopted a Negative Declaration in April 1994.¹

The Negative Declaration adopted by the city for the proposed research and clinical building has been reviewed and evaluated in connection with preparation of this EIR to determine its relevance to the LRDP activities at SFGH. The anticipated environmental effects of LRDP activities at SFGH would principally result from the net increase of 260 employees and construction of a new building at the site of parking lot "A". Some additional effects could result from the development of new building configurations that include the site of Building

100, which may be demolished, and an in-fill structure on the site of Building 10/20. The 120,000-gsf research and clinical building evaluated by the city in the Negative Declaration also involved construction of a new building or parking lot "A" and a net increase of 260 employees. As a result, the Negative Declaration represents a reasonable evaluation of the environmental effects that could result from LRDP implementation at SFGH. Since the projected 200,000 gsf of new UCSF space at SFGH would accommodate decompression and consolidation of existing UCSF uses, as well as new research space and related employment, it would result in the same number of net new employees as the smaller project evaluated by the city which included 20,000 gsf of clinical uses with higher population and visitor ratios.

1. LAND USE

As noted, the LRDP could result in UCSF use of a combination of up to three sites at SFGH: on the site of parking lot "A" adjacent to Building 3; on the site of the demolished Building 100; or, as an in-fill structure on the site of Building 10/20. Development of up to three new buildings for UCSF use at the three sites would be compatible with existing UCSF activities at SFGH. Although it would result in some intensification of research and institutional uses in the SFGH area, UCSF activities would occur within the boundaries of the SFGH site and would not be incompatible with the neighborhood. In addition, LRDP development at SFGH would not be expected to cause any land use impacts because individual projects would be expected to conform to San Francisco City Planning Code requirements for building height and bulk.

2. TRAFFIC/CIRCULATION/PARKING

SFGH is well-served by public transit, with six MUNI bus lines within a four-block area. SamTrans service to and from the peninsula is available along Potrero Avenue. UCSF operates a shuttle service that links SFGH to other major UCSF sites, and to the 16th and 24th Street BART stations during commute hours.

The transportation analysis in the Negative Declaration evaluated traffic and parking impacts associated with 260 net new employees at SFGH, the same number of net new UCSF employees contemplated for SFGH under the 1996 LRDP. The Negative Declaration concluded that the effects of 260 net new employees on intersection, parking and transit would not be significant. The anticipated traffic was not expected to change projected levels of service at six study area intersections. However, intersection conditions would be affected by traffic related to construction of the new SFGH parking garage, with or without the new research space. The Negative Declaration also determined that construction-related traffic would not measurably affect intersection levels of service. Based on similar trip-generation patterns between the project evaluated in the Negative Declaration and the LRDP activities at SFGH, transportation effects of LRDP activities at SFGH would not be considered significant.

3. AIR QUALITY

Construction activities related to LRDP uses at SFGH would potentially generate temporary air quality impacts from dust and construction equipment exhaust. The Negative Declaration described mitigation measures that would reduce construction air quality impacts to less-than-significant levels. Similar measures, implemented in connection with the LRDP activities at SFGH, would ensure that construction air quality impacts from LRDP activities would not be significant. No significant operational or ambient air quality effects are expected from implementation of the LRDP at SFGH. Emissions from LRDP traffic at SFGH are not anticipated to exceed the criteria air quality standards. Project-related emissions would not exceed BAAQMD thresholds of significance because net new vehicle trips would not generate air pollutants that would exceed 80 lb/day. Based on previous studies of toxic air contaminant emissions from research uses at UCSF/Mount Zion, it is anticipated that toxic air contaminant emissions from new UCSF uses at SFGH would generally be more than an order of magnitude lower than most thresholds at which adverse health effects may occur. Therefore, no adverse public health impacts are anticipated from toxic air contaminants.²

4. NOISE

Ambient noise and operational noise impacts are not expected to increase significantly as a result of LRDP activities at SFGH. Construction and demolition activities would result in temporary increases of construction noise which could be significant for the duration of such activities. For any construction at SFGH, all noise impacts could be reduced to less-than-significant levels with the application of the noise mitigation measures identified in the Negative Declaration, and compliance with local noise ordinance requirements. New structures at SFGH would comply with insulation standards specified in Title 24 of the California Code of Regulations.

5. HAZARDOUS MATERIALS

The use of hazardous materials and handling of any hazardous wastes on the SFGH site under the LRDP would be managed by the UCSF Department of Environmental Health and Safety, according to guidelines of the US Environmental Protection Agency, and the California Environmental Protection Agency. No adverse environmental effects from hazardous materials or wastes at the SFGH site are anticipated because UCSF would continue to comply with existing regulations covering hazardous materials and handling of hazardous waste, which would reduce any impacts to a level of insignificance.

Disposal of hazardous waste would contribute cumulative loads on hazardous waste management facilities. As discussed in Chapter 12, Section F, hazardous waste generators in California continue to rely on out-of-state treatment and disposal facilities to meet hazardous waste disposal needs. Long-term hazardous waste management capabilities that meet applicable laws and regulations are not currently available and may not be available in the future. Cumulative hazardous waste disposal impacts, therefore, are considered significant and unavailable.

6. PUBLIC SERVICES/UTILITIES

LRDP activities at SFGH would increase demands for, and use of, public services and utilities, but not in excess of amounts anticipated to be provided in the area by utility providers. The demands of the LRDP activities at SFGH for public services and utilities are not anticipated to adversely affect the providers' abilities to adequately serve the surrounding area.

7. VISUAL QUALITY

SFGH comprises a multi-block group of buildings of varying size, ages and architectural styles. SFGH is visible from major streets such as Potrero Avenue, and in more distant views such as from Bernal Heights or Potrero Hill. Development on parking lot "A" and demolition and replacement at the Building 100 site would create new buildings generally located within groupings of larger buildings at SFGH such as the main hospital. Because of the size and scale of overall development at SFGH, new construction at those two sites would not be prominent visually in the immediate area.

The Negative Declaration concluded that a new 60-foot-high building on parking lot "A" would not have significant visual effects. Use of the Building 100 site would replace an existing building, and would also not be expected to have significant visual effects. Development of an in-fill building at Building 10/20, partially filling the courtyard area between the two existing wings, would introduce a new visual element at SFGH visible from Potrero Avenue. The in-fill building would be expected to fill the easterly part of this space and would be shorter than the six-story Building 10/20. The brick facades with classical detail would remain as the main visual element of Building 10/20 seen from Potrero Avenue and longer distance views. Therefore, although specific building designs are not known, construction of new buildings at SFGH under the LRDP would not have significant environmental effects.

8. CULTURAL RESOURCES

Previous investigations have determined that there are no known archaeological resources on the SFGH site. Should any cultural resources be discovered during construction, the mitigation measures identified in the Negative Declaration would avoid significant effects.

9. OTHER IMPACT AREAS

The LRDP at SFGH would not be expected to have significant effects on Seismic/Geotechnical, Hydrology/Water Quality, Vegetation/Wildlife, Population/Employment/Housing, and Growth Inducement. LRDP development at the urbanized SFGH site would not change geotechnical, hydrological, or natural habitat conditions. Population and growth effects resulting from an increase of 260 UCSF employees at SFGH would have

effects similar to those considered in the Negative Declaration, and found not to be significant. These conclusions are supported also by the analysis of those topics in the Negative Declaration.

E. CONCLUSION

It is anticipated that the LRDP proposal to add up to 200,000 gsf of UCSF uses at SFGH would generate similar impacts to those identified in the Negative Declaration, producing no impacts that could not be mitigated to insignificant levels with the measures identified in the 1994 document as discussed above, other than the significant cumulative impact of low-level, long-lived radioactive waste. The proposed UCSF space would have the same functions as described for the space evaluated in the Negative Declaration and the 1996 LRDP proposal would generate approximately 260 new employees, the same number as analyzed in the Negative Declaration. Implementation of the LRDP at SFGH would provide other replacement space for existing UCSF uses that will lose their current space as a result of SFGH plans to remove obsolete or seismically vulnerable structures, or as decompression space for presently overcrowded UCSF facilities.

Specific effects of LRDP development at up to three sites at SFGH could potentially involve land use and visual quality effects not considered in 1994. Those effects were considered separately in the EIR and were found to be insignificant.

Actual development of UCSF space at SFGH would be under the jurisdiction of the City and County of San Francisco which would be the Lead Agency for environmental review of the SFGH *Institutional Master Plan* update, now in preparation. That review may identify environmental effects of other SFGH plans not discussed here. If identified, it would be the responsibility of the City and County of San Francisco to conduct the necessary environmental analyses of any such effects.

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1. City and County of San Francisco, Department of City Planning, *University of California San Francisco, Research Space at San Francisco General Hospital, Negative Declaration*, 93.695E, April 14, 1994.
 2. a) University of California San Francisco, *Mount Zion Hospital and Medical Center Proposed Integration Agreement Final Environmental Impact Report*, January 1990.

b) The threshold is exposure of receptors to toxic air contaminants from any UCSF site that 1) result in a cancer risk greater than 10 cancer cases per one million people exposed in a lifetime; or, 2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a hazard index of 1.0 or greater. See Chapter 3D.3.

Veterans Affairs Medical Center

Chapter 7: Veterans Affairs Medical Center

A. SETTING

The Veterans Affairs Medical Center (VAMC), located at Fort Miley in the northwest portion of San Francisco, contains a 378-bed general medical and surgical inpatient facility, as well as a 120-bed Nursing Home Care Unit. VAMC is under the sole jurisdiction of the US Department of Veterans Affairs; however UCSF and VAMC operate under an affiliation agreement and all physicians on staff at VAMC hold faculty appointments at UCSF. There are approximately 230 UCSF employees at VAMC. VAMC is a complex of 34 buildings located on 29 acres and contains a total of 593,700 gross square feet (gsf) of clinical, research and educational space including 149,615 gsf of inpatient care facilities.

B. 1996 LRDP AT THE VAMC

UCSF expects to maintain its current staffing levels and research activities as an affiliated institution at VAMC. No change in UCSF activities at VAMC is anticipated under the 1996 LRDP.

The Department of Veterans Affairs has identified one current project and several long-range projects under its Facilities Development Plan for VAMC. The current proposal involves construction of a new 14,700-gsf Neuroscience Building at the entrance to the main hospital near Clement Street and 42nd Avenue. Two clinics would be relocated out of an existing residential structure and an office building. Upon completion of the Neuroscience Building, the residence would be returned to its original use as a duplex and the vacated office space would provide decompression space for other existing units. No increase in staff would occur with the project.

In addition, VAMC's long-range projects beyond 2000 are included in the Facilities Development Plan. The primary need at VAMC is for rehabilitation of its old physical plant while adding new space for outpatient clinics, basic sciences research and some administration. Decompression of crowded facilities and consolidation of scattered administrative space are other determinants of the VAMC plan. Existing buildings are mostly older structures, with the exception of the new skilled nursing facility and parking garage. The plan calls for renovation of Building 1 for ambulatory care and its expansion to connect to Building 200. This would create a new front door to VAMC for outpatients. Building 5 would be demolished and be replaced on its site with a mental health outpatient facility and administrative space.

No major change in parking and circulation is anticipated at the VAMC. Some separation between service vehicle and passenger vehicle circulation is planned with most service traffic removed from the loop road and directed toward a relocated warehouse in the basement of the main hospital building on the south side of the site. Future new development may occur on

existing surface parking lots; therefore, replacement parking and some additional parking would be built in the western part of the site.

All of the long-range projects under the Facility Development Plan are projected to occur beyond the five-year time frame in year 2000 and beyond.

C. ENVIRONMENTAL EFFECTS

1996 LRDP. No projects are proposed for VAMC by UCSF under the 1996 LRDP; therefore, no further environmental review is required in this report.

VAMC Neuroscience Building. The Department of Veterans Affairs, as a federal agency, is responsible for completing environmental review under the National Environmental Policy Act for projects within its jurisdiction. The department completed a Draft Environmental Assessment on the Neuroscience Building project and concluded the project would not have significant impacts in the areas of: land use; population and socio-economic effects; transportation and parking; cultural resources; geology and soils; water resources; biological resources; public services and utilities; air quality and climate; noise; and hazardous materials and waste. A Final Environmental Assessment is currently being prepared.

The VAMC plan is being developed to meet the particular requirements of the VAMC and is separate from UCSF's activities under the 1996 LRDP.

Laurel Heights

Chapter 8: Laurel Heights

A. SETTING

The Laurel Heights site at 3333 California Street is an approximately 10.8-acre site bounded by California Street, Masonic Avenue, Euclid Avenue and Laurel Street. The Laurel Heights site is about two miles from Parnassus Heights and about one mile from UCSF/Mount Zion.

Situated in the Laurel Heights residential neighborhood, the Laurel Heights site stands prominently in the midst of predominantly single-family homes and other low-rise apartment buildings. Two neighborhood commercial districts are located nearby: the Laurel Village Shopping Center, to the west on California Street, and the Sacramento Street area connecting to Presidio Avenue, to the north and east. Area medical facilities include the UCSF Psoriasis Clinic at Spruce and Mayfair Streets, and the California Pacific Medical Center-California Street campus. Medical offices are located in the vicinity. Other nearby public uses include a fire station, public library, day care facilities, churches and the Jewish Community Center.

Built in three stages between 1955 and 1966, the Laurel Heights facility contains approximately 362,500 gross square feet (gsf) of program space, including 349,500 gsf in the main building and 13,000 gsf in a free-standing annex. An additional 107,400 gsf of covered parking is located on three lower levels of the main building.

Of the total amount of program space, UCSF currently occupies approximately 138,000 gsf. About 4,900 gsf is occupied by one non-UCSF tenant (the San Francisco Magnetic Resonance Center) and 219,600 gsf is unoccupied. Existing UCSF uses in the building include administrative offices for the School of Pharmacy, Medical Center and campus administrative units; a research laboratory; and other small units such as Drug Products Services and the Center on Deafness. The main building also contains a conference center, kitchen and dining facilities. Surface parking and landscaping line the northern and western edges of the site.

B. PLANNING HISTORY

The Laurel Heights facility was the Northern California headquarters of the Fireman's Fund Insurance Company until 1983. In 1984, UCSF began lease negotiations for some space in the Laurel Heights Building and Annex. During these lease negotiations, UCSF decided that it would purchase the Laurel Heights facility instead. In 1985, The Regents purchased the site. In April 1986, UCSF circulated a Draft EIR evaluating proposed UCSF uses consisting primarily of biomedical laboratories for the Laurel Heights facility. The Regents certified the Final EIR in July 1986. The Regents certification led to litigation challenging the validity of the 1986 EIR, followed by eight years of legal challenges and proposed revisions to the Laurel Heights use plan. During that time, UCSF use of the facility was negligible.

Ultimately, UCSF reevaluated its needs and priorities and determined that the Laurel Heights site provided an opportunity to eliminate some UCSF leases for designated administrative and academic units and to create a Center for Social, Behavioral and Policy Science. Under this revised plan, office uses and building support functions would occupy 93 percent of the space at the facility, and existing laboratory-based uses would continue to occupy the remaining seven percent of building space. UCSF prepared the *Revised Laurel Heights Plan FEIR* to analyze the potential environmental effects of this revised occupancy program. The *Revised Laurel Heights Plan FEIR* was certified by The Regents on September 15, 1995, and no legal challenge was made. Following certification of the EIR, The Regents amended the 1982 LRDP to reflect the revised Laurel Heights plan. UCSF is proceeding to occupy the Laurel Heights site pursuant to the *Revised Laurel Heights Plan*.

C. 1996 LRDP AT LAUREL HEIGHTS

The LRDP plan for Laurel Heights is to implement the *Revised Laurel Heights Plan* as set forth in the 1995 Amendment to the 1982 LRDP. As described above, the plan for Laurel Heights consists of fully occupying the Laurel Heights facility with office-based instruction and research uses associated with programs in the social and behavioral sciences and policy studies, and with campus administrative uses. Office uses and building support functions will occupy 93 percent of the building space, and laboratory-based uses will occupy the remaining seven percent. Full implementation of the current approved plan for Laurel Heights would result in the space profile shown in Table 8-1.

To support current and future occupants of the Laurel Heights facility, the LRDP proposes to upgrade infrastructure and utility systems to meet code, life safety and other requirements; improve emergency response, security and data network systems; provide additional parking through restriping of existing parking areas, provide valet parking, new on-site parking and new off-site parking; and provide new food service and child care facilities over time as the facility is renovated and occupied.

D. ENVIRONMENTAL EFFECTS

Information and analysis contained in the 1995 *Revised Laurel Heights Plan FEIR* is incorporated by reference herein. That EIR identified the following significant unavoidable environmental effects associated with the revised Laurel Heights occupancy plan (effects which could not be mitigated to a less-than-significant level): increases in PM₁₀ emissions due to the project; project contributions to cumulative violations of air quality standards in the San Francisco Bay Area; increased burdens on local and regional hazardous waste management capabilities due to the project; project contributions to cumulative burdens on regional hazardous waste management capabilities; and the one-time commitment or destruction of non-renewable and slowly renewable resources for project construction. The EIR concluded that all other impacts found to be potentially significant could be reduced to a less-than-significant level through the implementation of mitigation measures identified in the EIR. Those mitigation

TABLE 8-1
LAUREL HEIGHTS PROPOSED SPACE PROFILE (GSF)

Type of Space	GSF	Percent of Total
Instruction	1,200	0%
Research ¹		
Laboratory-based research	25,000	7%
Office-based research	150,000	42%
Clinical	32,500	9%
Support:		
Academic Support	0	0%
Academic/Campus Administration		
Occupied by UCSF	102,800	28%
Non-UCSF Tenant (SFMRC)	4,900	1%
Campus Community	39,300	11%
Logistics	6,800	2%
Subtotal Support	153,800	42%
Housing	0	0%
TOTAL^{2,3}	362,500	100%

Notes:

1. In accordance with the *1995 Amendment to the 1982 LRDP*, no more than seven percent of the total amount of research uses would consist of laboratory-based research uses; the remainder would consist of office-based research uses.
2. Excludes parking.
3. It is assumed that at any given time some space will serve as vacant/alteration space to accommodate routine departmental moves and temporary vacancies during space alterations.

measures have been accepted by UCSF and are included in the *Laurel Heights Mitigation Monitoring Program*.

E. CONCLUSION

Because the environmental effects of the 1996 LRDP activities at Laurel Heights have been fully analyzed in the *1995 Revised Laurel Heights Plan FEIR*, no further discussion of those impacts is required herein.

Mission Center Building

Chapter 9: Mission Center Building

A. SETTING

The UCSF Mission Center building, at 1855 Folsom Street, is located on a three-acre site in the southern half of the block bounded by 14th Street, Harrison Street, 15th Street and Folsom Street. The site is in the northeast Mission District about three miles from Parnassus Heights, 1.25 miles from San Francisco General Hospital, and five blocks from UCSF's facilities department at 20th and Harrison Streets.

The six-story Mission Center building contains approximately 291,000 gsf. About 96 percent of the building is occupied, with about 11,700 gsf of space currently vacant. UCSF uses of the Mission Center building are primarily campus and Medical Center administrative office uses such as accounting, hospital information systems and mail services. About 47,000 gsf are used for research labs and animal care. A 4,500-gsf child care center and small exterior play yard on the first floor serves up to 50 children. Two non-UCSF tenants, the National Japanese-American Historical Society and Viacom Cablevision, occupy about 16,600 gsf. At present, there are approximately 800 UCSF staff and 50 staff of UCSF's tenants in the Mission Center building, for a total on-site population of 850. About 400 visitors and vendors, including 50 children in child care, are also estimated to come to the site daily.

B. PLANNING HISTORY

In 1977, The Regents purchased a 49 percent condominium interest in the Mission Center building. Far West Laboratories, an educational research agency, owned the remainder. In 1989, Far West relocated to a new facility and The Regents purchased the other 51 percent interest in the Mission Center building. The purchase of the second half of the building was analyzed in a Negative Declaration adopted by The Regents in November 1989.¹ The Negative Declaration considered a total daily on-site population of 875 persons and 390 visitors. Full UCSF occupancy of the Mission Center building was considered to meet the objectives of the 1982 LRDP to locate support activities off the Parnassus Heights site in order to release space at Parnassus Heights for research and educational activities.

C. 1996 LRDP AT THE MISSION CENTER BUILDING

Under the 1996 LRDP, UCSF would continue to use the Mission Center building for campus administrative, academic and research functions. All currently vacant space would be developed by UCSF (see Table 9-1). For purposes of this EIR, it is assumed that full use of the Mission Center building would result in a total daily on-site population of about 895 persons (about 45 more than the current population, and about 20 more than the maximum

TABLE 9-1
MISSION CENTER PROPOSED SPACE PROFILE (GSF)

Type of Space	GSF	Percent of Total
Instruction	3,800	1%
Research	23,000	8%
Clinical	68,100	23%
Support:		
Academic Support	7,600	3%
Academic/Campus Administration		
Occupied by UCSF	141,500	49%
Non-UCSF Tenants (Offices)	16,600	6%
Campus Community	7,000	2%
Logistics	<u>23,400</u>	<u>8%</u>
Subtotal Support	196,100	68%
Housing	0	0%
TOTAL¹	291,000	100%

Notes:

1. It is assumed that at any given time some space will serve as vacant/alteration space to accommodate routine departmental moves and temporary vacancies during space alterations.

population projected in 1989).² Daily visitor levels (about 400 persons) would not be expected to increase and could decrease if the non-UCSF tenants (which draw members of the general public) were to vacate the building.

D. ENVIRONMENTAL EFFECTS

1. LAND USE

Located in the light industrial area in the northeast portion of the Mission District, the Mission Center building is prominent because of its size in the predominantly one- to three-story, lower-scale industrial and commercial area. A mix of manufacturing businesses and large retail outlets are located to the north and east. The San Francisco Municipal Railway (MUNI) bus maintenance barn and its accompanying parking garage are directly to the south and east of the Mission Center Building. A large supermarket is located to the west across Folsom Street. Commercial uses are mixed with clusters of housing in the blocks to the west.

Continued office and research uses of the Mission Center building under the LRDP would be compatible with other office, commercial and light industrial and mixed residential uses in the vicinity.

2. TRANSPORTATION AND PARKING

a. Transportation

In the immediate vicinity of the Mission Center building, Folsom Street is a north-south, two-lane-per-direction arterial with a parking lane in each direction. Harrison Street is a two-lane northbound and one-lane southbound street with a parking lane on the northbound side. On the west side of South Van Ness, 15th Street is a three-lane one-way westbound street. Adjacent to Mission Center, 15th Street is a two-lane east-west street terminating at Harrison Street. Similarly, 14th Street is a three-lane, one-way eastbound street to Folsom Street and continues one block as a two-way street terminating at Harrison Street. Thus, 14th Street and 15th Street form a one-way couplet to Market Street. The intersections of Folsom and 14th Street and Folsom and 15th Street are controlled by traffic signals. There are no controls on Harrison Street between 16th Street and Division Street.

The 1989 Negative Declaration evaluated potential transportation effects associated with a total building population of 760 persons at Mission Center and a projected daily population of 875 persons. Since 1989, the building population has increased to about 850 persons. Under the LRDP, a daily on-site population could reach 895 persons, which would be a net increase of 45 persons over the existing population. Under the LRDP, visitors to the Mission Center building are projected to remain at 400 per day, including 50 children.

Analysis of potential traffic and parking effects in the 1989 Negative Declaration showed a then-current level of service (LOS) C at the Folsom and 15th Street intersection during the pm peak hour. This LOS was projected to decrease to D by 1994 with full occupancy of the Mission Center building, and cumulative development in the area. Since 1989, the train tracks have been removed from Harrison Street, and this has allowed an additional lane of traffic on Harrison Street. This greater capacity on Harrison Street has eased traffic volumes along Folsom Street. With an increase of just 20 persons over the 875 analyzed in the Negative Declaration, and the improved road capacity in the vicinity which was not anticipated in 1989, the occupancy of the Mission Center building at full buildout under the LRDP would not be expected to cause the Folsom and 15th Streets intersection, or any other intersection in the vicinity, to deteriorate below LOS D. Therefore, no significant impacts on traffic volumes and circulation are anticipated from LRDP activities at the Mission Center building.

b. Transportation Management Program

UCSF provides university-owned vans for organized vanpools of 10 to 14 employees, and it offers free computerized matches for carpools and vanpools sponsored by RIDES For Bay Area Commuters, Inc. One UCSF vanpool and one privately sponsored vanpool are currently based at Mission Center.

As noted in the Traffic/Circulation/Parking section of Chapter 3, UCSF operates the campus shuttle service between all its major sites. The UCSF shuttle links the Mission Center building with the 20th and Harrison Streets building and San Francisco General Hospital to the south, and the Buchanan Dental Clinic and Parnassus Heights to the west. Passengers arriving at Parnassus Heights may remain on the shuttle and continue to Laurel Heights and UCSF/Mount Zion. In addition, during morning and evening commute hours, UCSF offers shuttle service to and from Mission and 16th Streets for connections to MUNI, BART and SamTrans.

c. Parking

UCSF operates employee permit parking for UCSF staff. The 258-space permit parking lot adjacent to the Mission Center building includes 241 undesignated spaces, six disabled spaces, seven designated visitor spaces and four designated police department spaces. UCSF also leases from the City and County of San Francisco a 200-space permit parking lot, with four disabled spaces, at 17th and Folsom Streets. About 100 spaces at the 17th and Folsom Streets lot are designated for use by San Francisco General Hospital, 65 are sub-leased to non-UCSF users, and 35 are available to UCSF Mission Center employees.³ Between the two lots, 276 undesignated off-street spaces are available for use by Mission Center employees and visitors.

A survey of the area in 1989 indicated saturated occupancy of the limited number of on-street parking spaces without posted time limits or meters immediately adjacent to the Mission Center building. This was due in part to competition for these spaces with MUNI employees. However, a MUNI parking garage was constructed on Harrison Street in 1991, and this released some previously unavailable on-street parking for other users. In addition, a substantial amount of low-occupancy, unrestricted street parking exists within a five-minute walk of the Mission Center building.

No substantial change in parking demand or supply would occur as a result of full occupancy of the Mission Center building under the LRDP. The existing supply of available off-street and on-street parking at or near Mission Center would be sufficient to accommodate the small potential increase in parking demand which could result from LRDP activities at Mission Center, even if the lease at the 17th and Folsom Streets lot were not maintained for the duration of the LRDP time frame.

3. AIR QUALITY

UCSF uses of the Mission Center building could affect air quality as a result of emissions generated by project-related traffic under the LRDP, combustion of natural gas for space and water heating, and emissions generated off-site by electricity consumed at the building. Transportation emissions would be the major source of operational pollutants; air emissions from use of natural gas and electricity would be minor compared to motor vehicle-generated emissions. Because of the small increase in UCSF use of Mission Center under the LRDP and the corresponding small increase in net new traffic, the emissions related to LRDP activities at Mission Center would not exceed BAAQMD thresholds of significance or otherwise cause or substantially contribute to exceeding Bay Area criteria air quality standards.

4. NOISE

LRDP activities at the Mission Center building would not significantly increase noise in the area, although there may be short-term temporary noise effects due to interior construction activities. Long-term noise levels from operation of rooftop mechanical equipment would remain within San Francisco Noise Ordinance Standards. No significant increase in Mission Center-related traffic would occur as a result of LRDP activities, and no noticeable increase in traffic noise is anticipated.

5. OTHER IMPACT AREAS

Because of the small increase in UCSF use of Mission Center under the LRDP, 1996 activities would not be expected to have significant effects on hazardous materials, seismic/geotechnical, hydrology/water quality, vegetation/wildlife/natural resources, public services, utilities/infrastructure/energy, visual quality, cultural resources, population/employment/housing and growth inducement.

E. CONCLUSION

Full occupancy of the Mission Center building under the LRDP would produce effects similar to current operations and to those identified in the 1989 Negative Declaration. The building would have the same functions as described in the Negative Declaration and with about 20 employees more than the number evaluated in the Negative Declaration, full occupancy of the Mission Center building under the LRDP would not cause any significant environmental effects.

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1. University of California at San Francisco *Purchase of Property at 1855 Folsom Street San Francisco Negative Declaration*, SCH No. 89030024, October 1989.
 2. The building contains approximately 11,700 gsf of vacant space with a current population of about 850 people. At 275 gsf per person for administrative uses, approximately 43 additional persons could occupy the 11,700 gsf of vacant space in the building.
 3. As of December 1995, 20 spaces were leased to UCSF employees, leaving 15 spaces for which no permits were issued.

Other San Francisco And Peninsula Sites

Chapter 10: Other San Francisco and Peninsula Sites

A. SETTING

UCSF occupies space at many other locations in San Francisco and the Peninsula. This space falls into three main categories: space at UCSF-owned sites characterized by a single functional use (Buchanan Street Community Dental Clinic, Hunters Point Animal Care Facility, and Oyster Point hospital laundry/campus warehouse); leased sites of 10,000 gsf or more for multiple UCSF uses (Laguna Honda School, the 20th and Harrison Street building, Executive Park and other locations); and smaller individual leased sites selected for the specific use and/or location (such as the Lakeshore Plaza family clinical practice at 1569 Sloat, the Vietnamese Community Health Project in the Vietnamese Community Center in Oakland and the OB/GYN clinical practice at 4434 Mission Street).

1. UCSF-OWNED SITES

The Buchanan Street Community Dental Clinic, a stand-alone dental clinic facility, is located on a 0.6-acre parcel within the boundaries of a larger parcel owned by the University of California Berkeley and used for the UC Berkeley Extension's San Francisco Center. The dental clinic serves as a clinical teaching facility for students in the School of Dentistry. The site is 2.5 miles from Parnassus Heights, and 25 UCSF personnel are employed at the clinic. The clinic building contains approximately 18,200 gsf in two stories and was built by UCSF in 1979.

The Hunters Point Animal Care Facility, used exclusively for animal care, is located on a 3.8-acre site at the eastern edge of the Hunters Point and Bayview neighborhoods, about ten miles from Parnassus Heights. The site is adjacent to the Hunters Point Naval Shipyard and contains two single-story buildings totaling approximately 17,700 gsf.

The Oyster Point facility is located on a 5.7-acre site in an industrial park off US 101 in the City of South San Francisco, about ten miles from Parnassus Heights. The site contains a single building which houses the campus Materiel Management warehouse and laundry facilities for the Medical Center. The building is a single-story, warehouse-type structure containing approximately 138,000 gsf.

2. LEASED SITES

UCSF leases a total of approximately 550,000 gsf of space at various locations in San Francisco and the Peninsula. This leased space serves primarily to help alleviate the space shortage at UCSF's owned sites, and to provide space in locations to allow specific users to be near patient

or client populations. Included in this category are leases at or near Parnassus Heights, UCSF/Mount Zion and SFGH. Several of UCSF's larger lease uses are summarized below.

UCSF leases approximately 48,700 gsf in the 56,000-gsf, three-story 20th and Harrison Street building located at 3130 20th Street in the Mission District of San Francisco. The 0.92-acre site is three miles southeast of Parnassus Heights, five blocks from Mission Center and six blocks from San Francisco General Hospital. The building is occupied by UCSF's Facilities Management department, several smaller administrative support units and academic programs in the School of Medicine.

UCSF leases approximately 30,330 gsf at San Francisco Executive Park, a mixed-use development in the Bay View/Candlestick Point area, approximately 7.5 miles from Parnassus Heights. Leased space is occupied by campus administrative units, particularly UCSF's information technology and telecommunication services units.

In San Francisco, portions of three downtown buildings are leased by UCSF for academic administrative units as follows:

- 44 Montgomery Street: 25,800 gsf (School of Medicine/Campus Administration)
- 74 New Montgomery: 36,200 gsf (School of Medicine)
- 1388 Sutter Street: 30,500 gsf (School of Medicine)

These leases are in high-rise office buildings and are intended to help alleviate the space shortage at Parnassus Heights and provide convenient access to the clients these units serve. Most occupants of these spaces need to remain in their present locations to be near their patient or client populations.

The Laguna Honda School at 1350 Seventh Avenue is four blocks west of Parnassus Heights and contains approximately 26,250 gsf of UCSF administrative and academic space. The primary occupants are the Human Resources units, including the Personnel department. All current UCSF uses at Laguna Honda School are scheduled to relocate to the Laurel Heights site within the next five years as part of the *Revised Laurel Heights Plan*.

B. 1996 LRDP AT OTHER SAN FRANCISCO AND PENINSULA SITES

1. OWNED SITES

The Buchanan Street Community Dental Clinic is expected to remain at its present location to serve its patient base, and current clinical and academic uses at the facility are expected to continue under the LRDP at existing levels.

Because “consolidation” of UCSF uses is a major goal of the LRDP, it is anticipated that development of a Major New Site would allow UCSF to relocate existing uses at the Hunters Point Animal Care Facility and the Oyster Point laundry and warehouse facility to the Major New Site. These properties would then be turned over to the Treasurer’s Office of The Regents for disposition if no other uses for the sites are identified. Until improvements begin at the Major New Site, however, current uses at Hunters Point and Oyster Point are expected to continue under the LRDP at existing levels. Environmental analysis related to the consolidation of these sites to the Major New Site is included in the analysis of the Major New Site in this EIR.

2. LEASED SITES

When the Major New Site is developed, the Facilities Management department at the 20th and Harrison Street building would likely be relocated to the Major New Site. Other occupants of that building could also relocate to the Major New Site and the lease could be terminated. In the alternative, the building could be reoccupied by similar UCSF uses or units from nearby San Francisco General Hospital. In the meantime, however, current use of 20th and Harrison is expected to continue under the LRDP at existing levels.

The existing downtown leased sites would continue to be utilized by UCSF during the LRDP time frame. Individual units, including the Development Office at 44 Montgomery, and the Institute for Health Policy Studies at 1388 Sutter are scheduled to relocate to the Laurel Heights site, and space vacated by those units may be returned to the market. However, for purposes of this analysis it is assumed the space would instead be re-occupied with other UCSF uses requiring a downtown location.

When existing UCSF uses at the Laguna Honda School are relocated to Laurel Heights in mid-1998 or early-1999, the building may be returned to the San Francisco Unified School District. However, for purposes of this analysis it is assumed that UCSF would work with the city and school district to correct existing seismic, life safety and ADA access deficiencies in order to reoccupy the building with UCSF academic administrative units or by closely affiliated organizations. UCSF use would therefore continue under the LRDP at existing levels.

If the Major New Site is developed at Brisbane Baylands/Executive Park, existing administrative units at Executive Park would be incorporated in the Major New Site. If the Major New Site were instead developed at Harbor Bay or Mission Bay, the existing uses at Executive Park would likely be relocated to the Major New Site and the lease terminated. In the meantime, however, UCSF use of the Executive Park site is expected to continue under the LRDP at existing levels.

When the Major New Site is developed, most of UCSF’s larger owned and leased sites described in this Chapter would be consolidated to the Major New Site, and the properties would be released to the general market. However, most of the current leases were selected for space type, location and available funding. Such leases are expected to be maintained even after the Major New Site is developed.

C. ENVIRONMENTAL EFFECTS

Since the LRDP does not propose any major changes to the existing types or amounts of UCSF uses at these sites, environmental effects associated with UCSF use of these sites are not discussed further in this EIR. Environmental analysis related to consolidation of existing uses at the 20th and Harrison Street building, Oyster Point, Hunters Point and other sites to the Major New Site is included in the analysis of the Major New Site in this EIR.

Fresno Medical Education Program

Chapter 11: Fresno Medical Education Program

A. SETTING

UCSF established a regional medical education program in Fresno in 1975. The purpose of this program is to provide training for doctors and other health care professionals in the Central San Joaquin Valley; increase the supply of primary care physicians in order to enhance the access to quality health care in the Central Valley; and encourage the practice of culturally sensitive medicine. UCSF/Fresno training programs are accomplished primarily through affiliation agreements with a number of hospitals in the area, including the Veterans Affairs Medical Center in Fresno, Valley Medical Center, Fresno County Hospital, Fresno Community Hospital and Medical Center, and Kaiser Permanente Medical Center. With the exception of an administrative office for the Associate Deans' offices and faculty working at the Veterans Affairs Medical Center, there is no single UCSF/Fresno campus site.

B. 1996 LRDP AT UCSF/FRESNO

1. UCSF-SPONSORED PROGRAM

Under the LRDP, UCSF proposes to lease an additional 6,000 gross square feet (gsf) of administrative office space in an existing facility at the Fresno Community Hospital and Medical Center. No other UCSF-sponsored program expansion is anticipated at UCSF/Fresno during the LRDP planning period. UCSF expects to continue current medical education activities at UCSF/Fresno at existing levels, including graduate and postgraduate medical education and UCSF/Fresno clinical services.

2. CENTRAL CALIFORNIA REGIONAL MEDICAL CENTER

The Central California Regional Medical Center that has been proposed for the Fresno area would be a collaborative effort in which civic and academic leaders, private health care providers and governmental agencies come together to integrate existing health care resources. The Regional Medical Center proposes to develop a total of 1,885,000 gsf of renovated and new medical facilities including the existing Fresno Community Hospital/Medical Center, a 27-acre campus in downtown Fresno. The proposed Regional Medical Center would consist of:

- renovation of the existing 475,000-gsf Fresno Community Hospital/Medical Center and a 355,000-gsf expansion to create a 515-bed adult acute care hospital;
- a new 200-bed Pediatric Hospital with a total of 500,000 gsf;

- a new Shared Adult/Child Trauma Center with a 100-bed intensive care facility incorporating a total of 160,000 gsf;
- facilities for UCSF use totaling 130,000 gsf of facility office, teaching space and community health center, as well as 220 units (243,000 gsf) of resident and student housing.

None of the development facilities are proposed for construction by The Regents, and the plan is not considered a University-sponsored capital improvement project as part of this 1996 LRDP. Rather it is assumed that should the regional plan be implemented, the space could be developed by the Regional Medical Center for UCSF/Fresno use.

An EIR on the Central California Regional Medical Center project was certified by the City of Fresno in January 1995. The project proposes four development phases over a nine-year period.

C. ENVIRONMENTAL EFFECTS

1. UCSF-SPONSORED PROGRAM

UCSF proposes to lease an additional 6,000 gsf of existing office space. This action would be categorically exempt from environmental review as a Class I-Existing Facilities Project.

2. CENTRAL CALIFORNIA REGIONAL MEDICAL CENTER

Information and analysis contained in the *City of Fresno, Central California Regional Medical Center Master EIR*, certified in January 1995, is summarized herein. Significant unavoidable environmental effects (effects which could not be mitigated to a less-than-significant level) identified in the *Master EIR* include: cumulative traffic volumes projected for the segment of State Route 41 north of Divisadero Street; long-term operational emissions exceeding air quality emissions standards for reactive organic gases and nitrogen oxides, as well as carbon monoxide 8-hour averages; and demolition of structures listed on, or eligible for, the National Register of Historic Resources. All other impacts found to be potentially significant could be reduced to a less-than-significant level through the implementation of mitigation measures identified in that EIR. Impact areas which were analyzed in the EIR include: intensification of medical uses on the project site, displacement of residential and commercial uses, amendment of zoning designations, aesthetics/light and glare, project-generated traffic increases, construction impacts, project-generated noise, utilities and public services, health and safety, seismicity, and population, housing, and employment.

No further discussion of those impacts is required herein.

Major New Site

Chapter 12: Major New Site

A. INTRODUCTION

1. PURPOSE AND ORGANIZATION

This chapter assesses the environmental effects of the Major New Site at each of the potential new sites: Brisbane Baylands/Executive Park, Harbor Bay and Mission Bay. The environmental analysis for each environmental topic is contained in individual sections in this chapter. Each topic begins with an analysis of environmental effects of the Major New Site that would be generic to any site (referred to in this EIR as “Development Scenario” impacts). These effects would occur regardless of site, size or jurisdiction from a 2.65 million gross square feet (gsf) development. The Development Scenario includes land use and user population assumptions for the Major New Site described in Chapter 2, Project Description, Section 2.E.2.

Next, the site-specific effects of the Major New Site are analyzed for each environmental topic for each Major New Site location. Impacts generic to the Development Scenario are not repeated in the comparative analysis of each potential site. However, if the magnitude of the impact (e.g., total water demand or total trip generation) would be the same at all three Major New Sites, but the significance of the impact would depend on existing baseline conditions at a site, then the EIR estimates the magnitude of the impact in the Development Scenario section, and assesses its significance in the site-specific section. In this manner, the EIR avoids unnecessary repetition of information. As necessary, each section for each environmental topic discusses site-specific regulations, setting information or methodology applicable only to an individual site. This structure is repeated for each environmental topic. This program-level EIR analysis of the Major New Site will be the basis for UCSF’s future assessment of the need for subsequent environmental review as the 1996 LRDP activities are implemented at the Major New Site eventually selected for development.

2. ACRONYM GLOSSARY

AB	Assembly Bill
AC Transit	Alameda County Transit
ABAG	Association of Bay Area Governments
ADWF	Average Dry-Weather Flow
ADT	Average Daily Traffic
af	acre-foot
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BART	Bay Area Rapid Transit

BMP	Best Management Practices
CAA	Clean Air Act
CALINE4	Computer model used to project roadside carbon monoxide levels
CAP	Capacity Assurance Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cf	cubic feet
CMA	Congestion Management Agency
CNDDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
Corps	The Army Corps of Engineers
dB	Decibel
dBA	A-weighted decibels — handle a sound's frequency components in a manner approximating the human ear.
DCP	Department of City Planning
DPT	Department of Parking and Traffic
DPW	Department of Public Works
DTSC	California Department of Toxic Substances and Control
EBMUD	East Bay Municipal Utility District
EH&S	UCSF Environmental Health and Safety
EIR	Environmental Impact Report
EMFAC7F1.1	California Department of Transportation's model for on-road vehicular emission rates
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAR	Floor Area Ratio
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
gpm	gallons per minute
gsf	gross square footage
GVMID	Guadalupe Valley Municipal Improvement District
kWh	kilowatt hour
L_{dn}	The day-night average noise level for a 24-hour period
L_{eq}	The average energy content of noise during the time it lasts

LOS	Level of Service
LRDP	Long Range Development Plan
mgd	million gallons per day
MHW	Mean High Water
MOU	Memorandum of Understanding
mph	miles per hour
msl	mean sea level
MTC	Metropolitan Transportation Commission
MW	megawatt
MWh	Megawatt hour
NCPA	Northern California Power Agency
NOI	Notice of Intent
No _x	Nitrogen Oxides
OHWM	Ordinary High Water Mark
PD	Planned Development
PG&E	Pacific Gas & Electric
PM ₁₀	Suspended particulate matter less than 10 microns
ppm	parts per million
RHB	Radiologic Health Branch
ROG	Reactive Organic Gases
SB	Senate Bill
S/LI/RD	Service/Light Industrial/Research and Development
SFFD	San Francisco Fire Department
SFM	State Fire Marshall
SFWD	San Francisco Water Department
TC	Trade-Commercial
TDM	Transportation Demand Management
UCPD	University of California Police Department
UCSF	University of California San Francisco
USFWS	US Fish and Wildlife Service
UST	Underground Storage Tank
V/C	Volume/Capacity ratio
VAMC	Veterans Affairs Medical Center
WAPA	Western Area Power Agency

B. LAND USE

1. DEVELOPMENT SCENARIO

Although the University of California is constitutionally exempt from local land use regulations, UCSF has chosen to work voluntarily with local jurisdictions to assure that mutual land use interests are addressed. The LRDP's Goals and Objectives also call for UCSF development under the LRDP to conform with local land use policies and regulation. Therefore, this Land Use section identifies the existing land uses on each of the proposed locations for the Major New Site, and the zoning or general plan policies, which would affect the development of each site. This section then evaluates the compatibility of the Major New Site with each jurisdiction's planning requirements to evaluate potential effects on established land use patterns that could result from the 1996 LRDP activities. The Major New Site could be accommodated in a variety of configurations that would meet the LRDP goals and would be responsive to local land use plans and policies. Thus, analysis in this section addresses the general land use effects of developing a Major New Site anywhere within the entire Brisbane Baylands/Executive Park, Harbor Bay and Mission Bay planned developments. While the analysis also discusses the illustrative site plans included herein as one possible layout of the campus, the analysis is not limited to a discussion of a single site plan within the potential Major New Sites.

Although this EIR identifies the potential environmental impacts of both the "Development Scenario" and the "Site-Specific" Scenarios on the potential Major New Sites, those impacts would be expected to occur with development of the sites either for a business park or an industrial park as approved in the designated plans for these sites, regardless of the project sponsor.

The 1996 LRDP discusses land use, site development and campus design goals from the Goals and Objectives document, to be considered during selection of the Major New Site. The goals are:

- Locate programs and activities at sites which are suitable and desirable for them and that do not contain conflicting uses.
- Arrange sites to reinforce academic and operational relationships.
- Ensure that UCSF development is compatible with physical surroundings in use, scale and density, and that surrounding land uses do not negatively affect UCSF's activities.
- Plan for growth at a Major New Site, which will accommodate existing programs, new programs and as yet unprogrammed growth, and which is suitable, flexible, safe and attractive for its occupants.
- Optimize design, placement and relationship of buildings on all sites to meet UCSF's program needs in the best way possible.

The LRDP proposes to develop 96 family student spaces and 248 single student spaces, with the majority at or near the selected Major New Site. The Brisbane Baylands/Executive Park, Harbor Bay and Mission Bay areas represent a variety of conditions for residential potential, because of local land use plans. For example Brisbane policies specifically exclude residential uses from the Baylands, while the *Mission Bay Plan* includes up to 8,500 dwelling units. While specific UCSF housing proposals could conflict with local land use plans, the location and timing of student housing development under the LRDP is unknown at this time. No conclusions about UCSF housing relationships with local plans and policies are presented herein.

Scenario-Specific Standards and Methods

Land use conditions and regulations are different at each location considered for the Major New Site.

Impact analysis for the land use section includes a separate analysis of each of the planning jurisdictions for the potential Major New Sites, including a review of the local land use policies and regulations, as applied to the potential Major New Site. Potential environmental impacts are then compared to the standards of significance. If potentially significant impacts are identified, mitigation measures are identified to eliminate the impacts or reduce them to a level of insignificance.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

The Brisbane Baylands/Executive Park sites are approximately six miles from downtown San Francisco and about five miles north of San Francisco International Airport (see Figure 2-1, in Chapter 2, Project Description). The Major New Site would include part of Brisbane Baylands in the City of Brisbane, just south of the San Francisco County line, and part of Executive Park, which is immediately north of the county line and west of Candlestick Park in the City of San Francisco. Both the Brisbane Baylands and Executive Park sites are owned by Tuntex Properties.

a. Site-Specific Setting

Site Land Uses and Surrounding Land Uses

Brisbane Baylands

The Brisbane Baylands site is generally a flat, man-made plain, largely vacant except for scattered former railroad structures, a tank farm and CalTrain tracks. The Brisbane Baylands site is divided by the east-west Tunnel Avenue and the north-south CalTrain railroad tracks. Bayshore Boulevard runs along the western boundary and US 101 parallels its eastern boundary. Brisbane Baylands is one of three designated Planned Developments (PD) in the City of Brisbane. The 523-acre Brisbane Baylands site is generally situated northeast of central

Brisbane, the most developed portion of the city. The site is largely undeveloped, and surrounding land uses are mostly a mix of commercial (including heavy- and trade commercial) and office uses. Adjacent features include light industry at Tunnel Avenue, the Norcal Waste Transfer site and Industrial Way industrial facilities. The nearest residential development is some distance to the southwest in central Brisbane. The Brisbane Baylands site is adjacent to the City and County of San Francisco to the north and east, Daly City to the west and US 101 and San Francisco Bay beyond to the east (see Figure 2-6, in Chapter 2, Project Description).

Executive Park

Executive Park is a planned development originally approved by the City and County of San Francisco in 1976 for the Yerby Corporation, then the owner. Three office buildings currently exist at Executive Park, each containing approximately 100,000 gsf (see Figure 2-6). To the east of the office buildings the approved development plan calls for 600 residential units. Executive Park is adjoined by park and recreation areas around its northern, eastern and southern boundaries (Bay View Park, Candlestick Park, Candlestick Point State Park and the Candlestick Point Recreation Area). Low- and medium-density residential development in San Francisco are located to the west of US 101 and north of Bay View Park. The nearest industrial land use is located to the southwest of Executive Park.

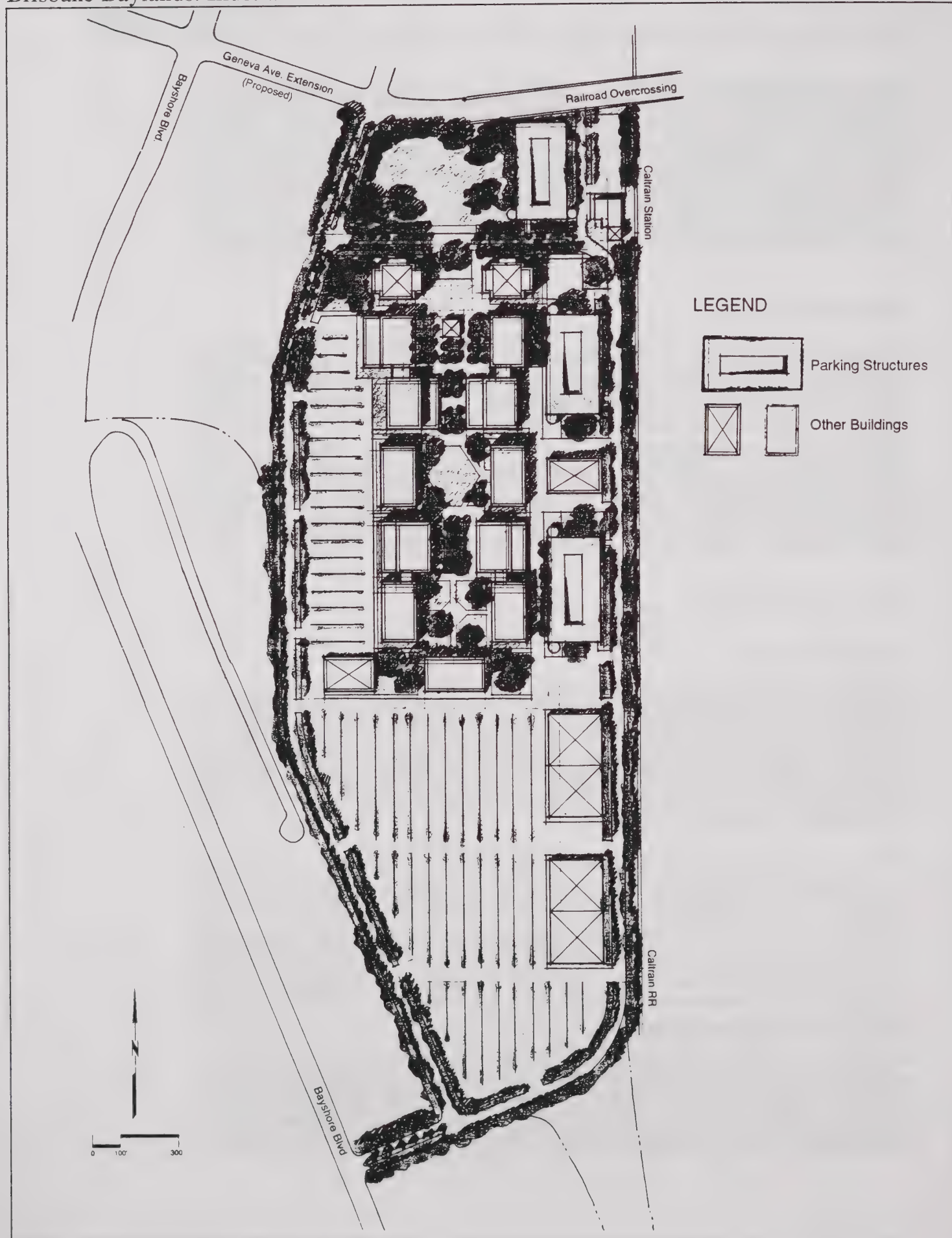
Site-Specific Standards and Methods

Brisbane General Plan

Configuration of the Major New Site at Brisbane Baylands/Executive Park could include about two-thirds of the Major New Site development program at Brisbane Baylands on about 86 acres of the 523-acre parcel (see Figure 12-1). The 1994 *Brisbane General Plan* designates the Brisbane Baylands subarea as a Planned Development-Trade Commercial (PD-TC) area. This designation is applied to subareas, such as Brisbane Baylands, that are primarily vacant and that present unique development constraints.

PD subareas may be combined with other land use designations and/or site specific uses. A specific plan and environmental review must be approved prior to any development of the property. The TC designation allows a mix of commercial uses (including warehouses, distribution facilities, offices, retail uses, restaurants, commercial recreation and personal services) and light industrial, research and development uses, and uses of a similar character. Public and semi-public facilities and educational institutions may be allowed under this designation. A UCSF site is specifically mentioned in the *Brisbane General Plan* as a possible future use for the Brisbane Baylands site.

The 1994 *Brisbane General Plan* development requirements for the Brisbane Baylands site specify an employee-per-1,000-square-foot-of-building ratio of 1.23 to 3.22; a maximum floor area ratio (FAR) for the proposed site of 4.8 FAR; and a minimum open space/open area coverage of 25 percent of total site development.¹ The *General Plan*'s FAR specifications for



Source: Wallace Roberts & Todd, 1996.

the Baylands are intended to “accommodate diversity in the height and intensity of structures states, however, that the FAR identified for the Baylands “in no event shall be interpreted as permitting the maximum intensity throughout the area.”

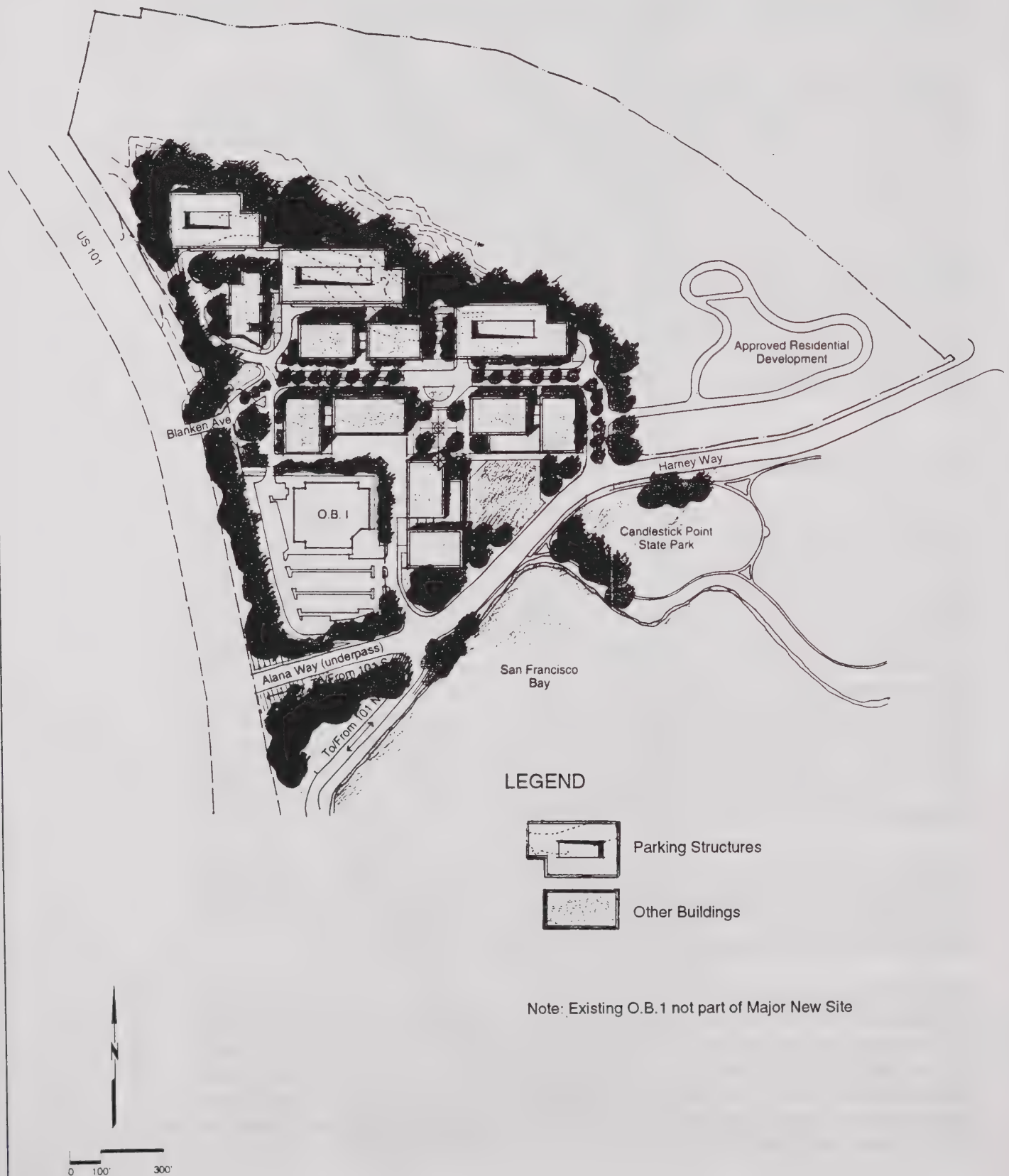
Chapter XII.12 of the *Brisbane General Plan*, Policies 329 through 373 apply specifically to development at the Brisbane Baylands. They specify the requirements for site specific plans, environmental assessment, building heights, design and appearance, transportation and circulation, open space/conservation and, community health and safety for the site. Policy 339.1 describes the potential for a UCSF campus site in Brisbane as follows: “If UCSF decides it wants to build a campus in Brisbane, and if the city approves the proposal, a development or other agreement between the city and the University would be a precondition of approval, to ensure that conditions and mitigations that would make the development acceptable to the city and its people are included.” Although this policy was adopted by the City of Brisbane, UCSF is constitutionally exempt from local planning requirements, including the need for a development agreement. (See Chapter 3, Section B, Land Use.) Consistent with the LRDP Goals and Objectives, UCSF would seek to work with Brisbane to assure that the intent of the *General Plan* policies were met.

San Francisco Master Plan and City Planning Code

Configuration of the Major New Site at Brisbane Baylands/Executive Park could include about one-third of the Major New Site development program at Executive Park on about 32 acres of the 71-acre site (see Figure 12-2). The Executive Park site is subject to the *San Francisco Master Plan*, as the Executive Park Subarea Plan portion of the South Bayshore Area Plan. The objective of the subarea plan is to “Create, as a gateway to the city, a balanced urban development where office, retail space and a hotel are integrated with a central plaza, promenades, and open space, with a new residential community to the east.” In 1985, the plan for the site was amended to consist of a 2.4 million gsf mixed-use development with retail, hotel and housing space, as well as additional office space. The Executive Park Subarea Plan allows office buildings to range in height from 40 to 200 feet, with a maximum building length of 170 feet and maximum diagonal dimension of 200 feet. In 1993, another amendment was approved which increased total residential square footage of the 600-unit residential component of Executive Park from 425,000 gsf to 850,000 gsf, while keeping the number of units the same.

The Executive Park Subarea plan is implemented through the City Planning Code (Zoning Ordinance) for the City and County of San Francisco. The Zoning Map of the City Planning Code designates Executive Park as a C-2 (Community Business) commercial area. The C-2 zoning allows a mix of commercial uses, institutional uses and residential uses.

Height and bulk limits for the Executive Park site vary. Most of the site is designated 40-X, which allows a structure to cover the entire lot (X designation) up to the 40-foot height limit. Other height and bulk designations in Executive Park would allow building heights from 60 to 200 feet. Bulk limits (G, H and I designations) would all allow maximum building length and diagonal dimensions of 170 feet and 200 feet, respectively. The designations allowing greater building height are generally concentrated at the center of the Executive Park site. Height and bulk limits are specified under Section 270 of the San Francisco Planning Code. See Chapter



3, Section B, Land Use, for discussion of City and County of San Francisco policies and plans related to the 1996 LRDP activities.

b. Impacts and Mitigation Measures

Impact 12B2-1. Consistency with Local Plans and Codes (Project/Less Than Significant). Development of the Major New Site at Brisbane Baylands/ Executive Park would be consistent with local land use plans, zoning codes, and environmental goals, plans and policies.

The Major New Site at Brisbane Baylands/Executive Park would include about 2.65 million gsf of space, excluding parking, which could be developed with about 1.72 million gsf at Brisbane Baylands, and 930,000 gsf at Executive Park (see Figures 12-1 and 12-2). At the Brisbane Baylands site, about 5,163 parking spaces occupying approximately 1,745,000 gsf of space would be required (parking estimates are determined at a rate of three parking spaces per 1,000 gsf of program space). This would include about 1,783 parking spaces located in about 562,000 gsf of structured parking, and about 3,380 spaces located on about 1,183,000 gsf of surface parking. The proposed 1996 LRDP activities are specifically identified in the *1994 Brisbane General Plan* as a potential use for the Brisbane Baylands site. The Major New Site and associated parking facilities would be consistent with the *1994 Brisbane General Plan*.

The *Brisbane General Plan* identifies a FAR limit for Brisbane Baylands of 4.8:1, and it is anticipated that the UCSF development at the Major New Site would be consistent with that limit, as reflected in the illustrative site plan.

The *Brisbane General Plan* calls for maximizing opportunities for open space and recreational uses in the Brisbane Baylands. The Major New Site plan would respond to that *General Plan* policy by including a central landscaped open space area and other open space as part of the site.

The potential Major New Site configuration would occupy a total of about 930,000 gsf at Executive Park. About 878,000 gsf of structured parking (2,787 parking spaces) would be constructed to support UCSF uses and total gsf for UCSF's occupancy and parking at Executive Park would be about 1,808,000. Although research and educational uses were not specifically identified, the approved 2.4 million gsf mixed-use development program for Executive Park would be of a similar intensity of use and would be capable of accommodating the requirements of the Major New Site. An additional 870,000 gsf would remain available under the Executive Park Development Agreement for non-UCSF development, primarily residential uses. The land uses proposed for the Major New Site would not present a substantial change from, and would remain consistent with, the use policies of the Subarea Plan. Previous correspondence with San Francisco City Planning officials indicated that research laboratories would be a compatible use for Executive Park.²

The heights and dimensions of the Major New Site buildings at Executive Park would be expected to generally meet San Francisco planning code requirements at the site for height and bulk.

Mitigation Measure 12B2-1. (Less Than Significant). None required.

Impact 12B2-2. Compatibility with Existing Land Uses (Project/Less Than Significant). Development of the Major New Site at Brisbane Baylands/Executive Park would introduce substantial physical changes which would be compatible with the existing and approved land use at Brisbane Baylands and at Executive Park.

The Major New Site at Brisbane Baylands/Executive Park would develop mostly vacant portions of planned development lands. This would result in a change and intensification of land uses. However, development of each site is a stated goal respectively of the Brisbane Baylands Subarea and Executive Park Subarea plans, and for Executive Park, is the subject of existing development approvals. Although the Executive Park Subarea Plan refers to office and administrative uses at Executive Park, the physical structures required for the proposed educational and research uses are similar to business park developments such as is approved for the site. This would be considered a less than significant impact.

In addition to developing vacant portions of Executive Park, UCSF may not be able to make effective use of the existing office buildings for its programmatic requirements. For purposes of this EIR it is assumed that development of the Major New Site would involve demolition of two of the three existing office buildings (one of which is already partially used by UCSF administration), which are unsuited to the needs of the Major New Site for research and instruction space. One building, not owned by Tuntex, would remain. Net new space at Executive Park after demolition would be about 730,000 gsf.

Displaced occupants from office buildings at 2000 and 2100 Executive Park Boulevard would be expected to relocate to other vacant office space in the Bay Area. It is assumed that relocation would occur as lease terms expire. However, UCSF would meet all applicable federal and state requirements covering displacement of non-UCSF tenants if UCSF found it necessary to control this building space prior to expiration of the lease terms.

Mitigation Measure 12B2-2. (Less Than Significant). None required.

3. HARBOR BAY

a. Site-Specific Setting

The proposed Major New Site at Harbor Bay would be located in the Harbor Bay Isle Development on Bay Farm Island in the City of Alameda (see Figure 2-7, Chapter 2, Project Description). The Harbor Bay Isle development is bounded on the north by the San Leandro Channel and residential communities, on the east by the Alameda Municipal Golf Course, on the south by Metropolitan Oakland International Airport, and on the west and southwest by San Francisco Bay. The area known as Harbor Bay Isle was created from bay dredge and fill operations, as well as perimeter dikes.

Bay Farm Island is designated by the *City of Alameda General Plan* as one of the city's nine Planning Sectors. Land uses on Bay Farm Island are generally similar to those of the City of Alameda as a whole; consisting of a mix of low- and medium- density residential, business, commercial, light industrial, office, public and recreational uses. Harbor Bay Business Park is the largest single private non-residential land use on Bay Farm Island, and in the City of Alameda, with about 320 acres designated for development as business park, retail and hotel uses.

Site Land Uses and Surrounding Land Uses

Harbor Bay Business Park presently contains about 100 acres of development, consisting mostly of office and research laboratories. Another 24 acres of vacant land was sold to Ascend Communications, Inc. in December 1995 for development of a campus-type corporate headquarters. Approximately 196 acres of undeveloped land remains at Harbor Bay. As potentially configured in the 1996 LRDP, the Major New Site at Harbor Bay would require a total development area of about 67 acres.

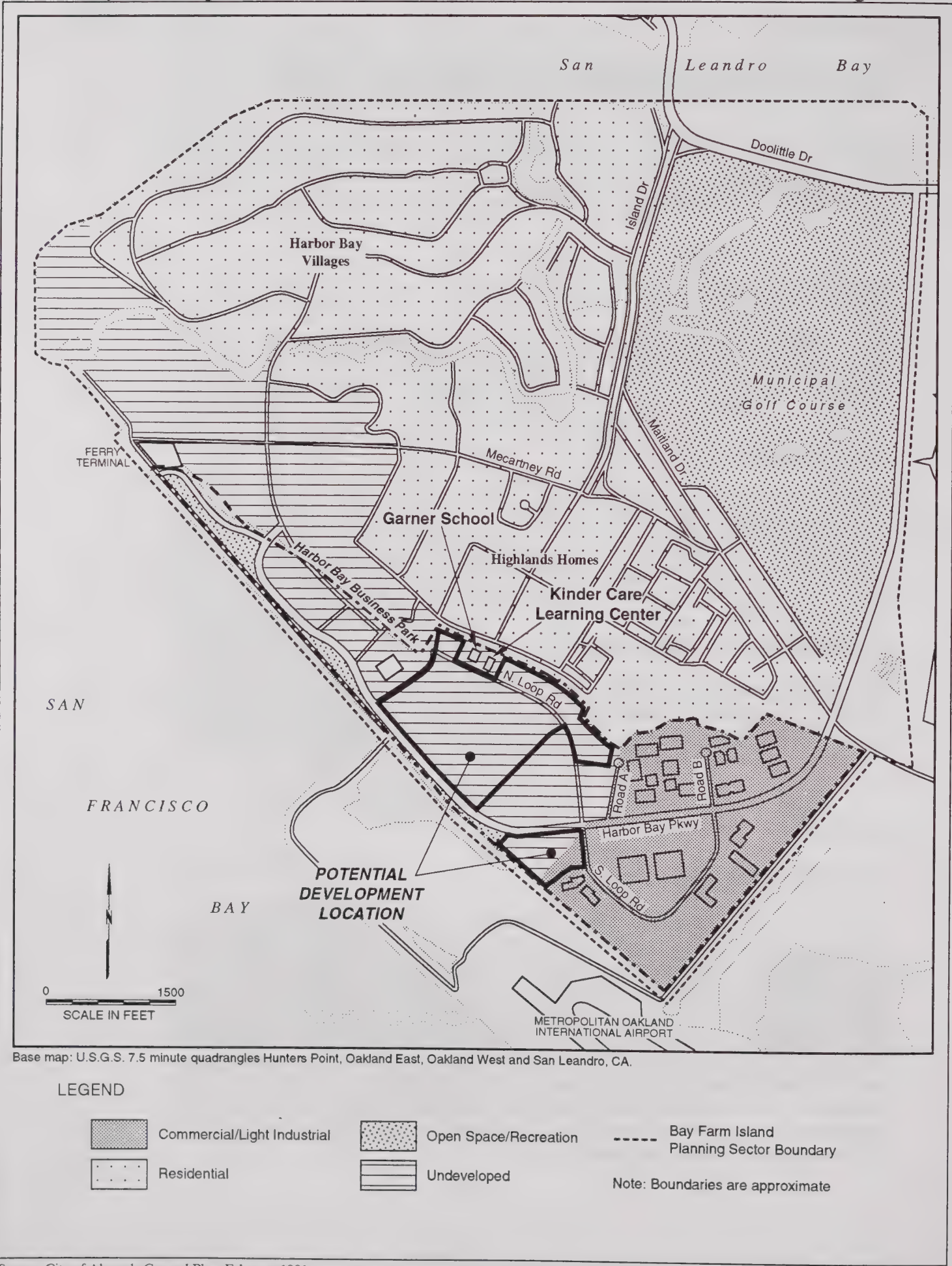
To the north and east of the Harbor Bay Business Park is the Highlands Homes residential area of Bay Farm Island. The Kinder-Care Learning Center and Garner School are located on North Loop Road (see Figure 12-3). To the southeast of the site along Harbor Bay Parkway are commercial/light industrial buildings, generally located between Road A and Road B. Across Harbor Bay Parkway adjacent to the site are additional Business Park buildings. San Francisco Bay is west of the site and the Business Park. The northerly end of Metropolitan Oakland International Airport runways are about 1,000 feet from the southern edge of the Business Park.

The illustrative site plan for the Major New Site at Harbor Bay shows that the approximate portion of the Business Park that could be developed as UCSF's Major New Site is divided by Harbor Bay Parkway in the western half of the Harbor Bay Business Park (see Figure 12-4). The site is a flat, undeveloped area with informal jogging and walking paths.

Site-Specific Standards and Methods

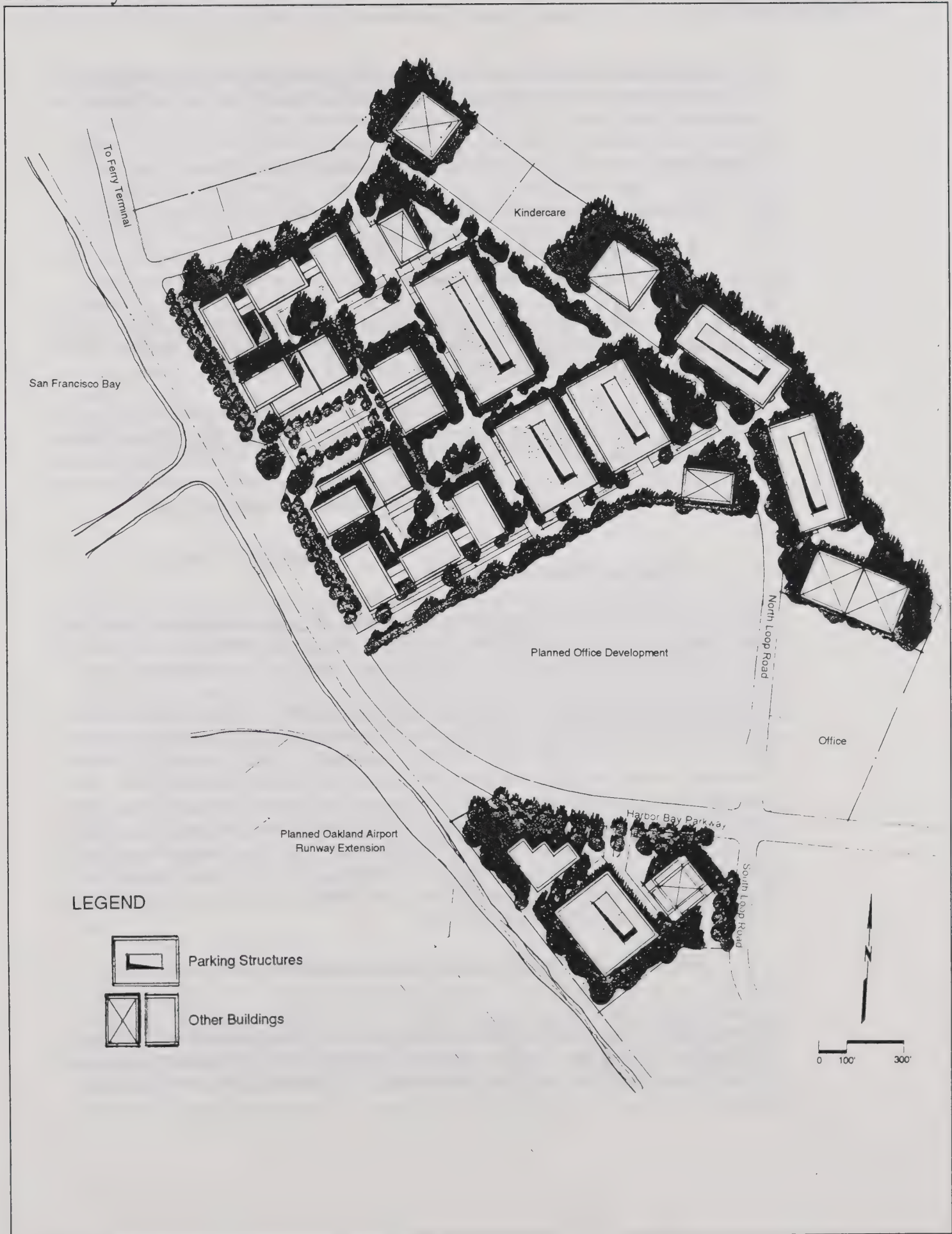
City of Alameda Plans and Policies

The *City of Alameda General Plan* considers Harbor Bay Business Park as one of five business/industrial areas in Alameda. The approved development plan for the Business Park includes 5.2 million gsf of office, research and development space, and a conference/hotel space site. Of this, about 1.2 million gsf have been developed.³ The *General Plan* indicates that the assumed development by 2010 for the Business Park will be 3,545,000 gsf of business park uses and 540,000 gsf of retail/hotel uses.⁴ The *General Plan* specifies a maximum FAR for a building site of 0.5, with increases up to a maximum of 2.0 permitted, proportional to the amount of required parking enclosed in a structure. Building height in the business park could be affected by clearance requirements for nearby Metropolitan Oakland International Airport. The *General Plan* would allow buildings at Harbor Bay up to 100 feet tall by right, and up to 156 feet subject to discretionary review.



Base map: U.S.G.S. 7.5 minute quadrangles Hunters Point, Oakland East, Oakland West and San Leandro, CA.

Source: City of Alameda General Plan, February 1991.



The Harbor Bay Business Park is currently zoned for light industrial and commercial uses (C-M-PD). Uses allowed under this designation include research laboratories and institutions, and other related uses.⁵

Policies of the *Alameda General Plan* Land Use Element for Harbor Bay include:

Guiding Policies: Business Parks and Industrial Areas

- 2.8.a: Support development of Harbor Bay Business Park consistent with existing approvals and agreements.
- 2.8.d: Continue working to eliminate residential/industrial conflicts based on the assumption that the boundaries between the uses on the General Plan Diagram will endure 20 years or longer.

The *Alameda General Plan* also includes an Airport Environs Element, related to proximity of developed areas of Alameda to the Alameda Naval Air Station, and to Metropolitan Oakland International Airport. The element primarily focuses on aircraft noise issues in residential areas, including potential increased noise effects of runway and operations expansion under consideration in the Oakland Airport Master Plan currently in preparation.⁶

b. Impacts and Mitigation Measures

Impact 12B3-1. Consistency with Local Plans and Codes (Project/Less Than Significant). Development of the Major New Site at Harbor Bay would be consistent with local land use plans, zoning codes, and environmental goals, plans and policies.

The available space in the Business Park is zoned for light industrial and commercial uses. Uses allowed under this designation include research laboratories and institutions, and other related uses.⁷ The Major New Site would include approximately 2.65 million gsf of research, instruction, academic support, administrative, logistics and campus community uses. These uses, which are essentially a mix of research, office and light industrial uses (see Figure 12-3), would be consistent with the planned uses for the Harbor Bay Business Park, as well as with the City of *Alameda General Plan* and zoning code. Those uses would also be consistent with noise and safety policies in the Airport Environs Element. It is anticipated that the UCSF development at the Major New Site as reflected in the illustrative site plan would be consistent with the city's proportional FAR requirements.

Mitigation Measure 12B3-1. (Less Than Significant). None required.

Impact 12B3-2. Compatibility with Existing Land Uses (Project/Less Than Significant). Development of the Major New Site at Harbor Bay would introduce substantial physical changes to the site which would be compatible with the existing land use in the area.

The Harbor Bay Business Park is the commercial and industrial element of the mixed-use Harbor Bay Isle development. The Business Park currently contains 1.2 million gsf of development and could accommodate the requirements of the Major New Site within the remaining four million gsf of undeveloped space allowed by the development plan. The Major New Site development would occur on existing vacant land and result in a change and intensification of current land uses. However, as those lands are planned by the City of Alameda for eventual development of office and research-type uses regardless of the 1996 LRDP, this would be considered a less-than-significant impact.

Harbor Bay Business Park is near the northern end of the runways of the Metropolitan Oakland International Airport this proximity may pose conflicts between the airport and business park uses. The issue of land use compatibility has been addressed by the City of Alameda in its *General Plan* and the Business Park has been approved for research and institutional uses, among others. Airport noise is addressed in other chapters of this EIR, including Section E, Noise.

Mitigation Measure 12B3-2. (Less Than Significant). None required.

4. MISSION BAY

a. Site-Specific Setting

Mission Bay is located approximately one mile south of the San Francisco Financial District, adjacent to the South of Market and South Beach districts. It is generally bounded by Townsend Street on the north, Third Street, the San Francisco Bay and Terry A. Francois Boulevard (formerly China Basin Street) on the east, Mariposa Street on the south and Seventh and Pennsylvania Streets on the west. I-280 provides access to Mission Bay via a ramp at Fourth and Berry Streets and via its terminus at Sixth and Brannan Streets just north of the site. US 101 is approximately one-half mile to the west. Figure 2-8, in Chapter 2, Project Description, shows the location of Mission Bay.

Mission Bay is a 313-acre⁸ area owned predominantly by Catellus Development Corporation, the successor of the Santa Fe Pacific Realty Corporation (the real estate subsidiary of the former Southern Pacific Transportation and Atchison, Topeka & Santa Fe Railway companies). In 1992, the City of San Francisco and Catellus completed the *Mission Bay Plan*, a Specific Plan, for development of between 294 and 309 acres⁹ of the approximately one-half square-mile site area.

Formerly a railyard and warehousing district, Mission Bay was primarily zoned as an M-2 Heavy Industrial Use District in the San Francisco City Planning Code prior to 1991. Warehouse facilities and truck terminals continue to occupy many of the buildings remaining within the site area. Large expanses of the site are vacant, although railroad tracks remain in some areas, including the tracks that serve the CalTrain station at Fourth and Townsend Streets. The *Mission Bay Plan* created special Mission Bay zoning and anticipated development of a mixed-use planned development of housing, office, neighborhood commercial, service/light

industrial/research and development, heavy industrial, port-related/heavy industrial, hotels, community facilities, ballpark and open space.

Chapter 2, Project Description, describes the current status of the *Mission Bay Plan*. Although Catellus Development Corporation has withdrawn from the Mission Bay Development Agreement with the City and County of San Francisco, the *Mission Bay Plan*, and related City Planning Code zoning designations continue to be the applicable local land use control for the Mission Bay area; therefore, this EIR discusses these controls in relation to the potential Major New Site at Mission Bay.

Site Land Uses and Surrounding Land Uses

The Mission Bay Plan area currently includes the stub of I-280, the CalTrain commuter rail operations, a mobile home park, vacant land, a golf driving range, industrial trucking operations and port-related uses. The Illustrative Site Plan for the Major New Site at Mission Bay Plan shows potential UCSF development within the Subareas of “West of Third Street” and “East of Third Street” (see Figure 12-5).

North of Mission Bay is the South Beach area, which is a growing office, office-services, housing and mixed commercial area. The South of Market district forms the northwesterly border of Mission Bay. This district is a mixture of office (particularly media and entertainment businesses), warehouse, live/work artist studios, retail (including restaurants and night clubs), residential and light industrial uses. Immediately west of the Mission Bay site is the Showplace Square area, a center of design and showroom facilities.

Southwest of Mission Bay are older industrial areas along Seventh Street. South of Mariposa Street is Potrero Hill, a primarily residential area separated from Mission Bay by I-280 and a strip of industrial uses west of the freeway. South of Mission Bay are industrial uses, some office and residential uses and the Central Bayfront, a predominantly maritime and industrial area.

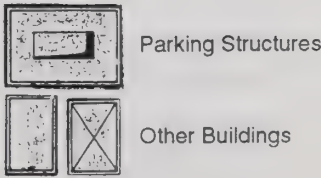
Site-Specific Standards and Methods

City of San Francisco Plans and Codes

The *Mission Bay Plan* is a Specific Plan within the Central Waterfront Plan of the *San Francisco Master Plan*. Also applicable to the Mission Bay site are the San Francisco City Planning Code and the Memorandum of Understanding between the City and County of San Francisco and UCSF regarding UCSF master planning, construction and real estate utilization. Each of these planning documents are summarized below. The MOU is discussed in Chapter 3, Section B, Land Use.



LEGEND



San Francisco Master Plan and Mission Bay Plan

As a Specific Plan, the *Mission Bay Plan* contains a comprehensive set of plans, policies, guidelines and implementation measures fashioned around a concept of a new neighborhood in Mission Bay. Adopted in February 1991, the *Plan* calls for 8,500 housing units, 4.8 million gsf of office/institutional space, 900,000 gsf of commercial/light industrial space, 750,000 gsf of retail space, a 500-room hotel and 67.9 acres of open space. The approved plan locates the housing in the center of the site, with the office/institutional and commercial/light industrial space along the periphery, and retail and open space network spread throughout the development.

The Central Waterfront Plan Element of the *San Francisco Master Plan* is also applicable to the Major New Site at Mission Bay. The Central Waterfront Plan encompasses the Mission Bay area, plus two subareas that include China Basin, the northern half of Central Basin and adjacent inland areas. The major objectives of the Central Waterfront Plan are to maintain and expand maritime and industrial activities, complemented by residential, commercial and recreational uses on surplus land. The purpose of the Central Waterfront Plan is to encourage development to meet the city's economic and employment needs, without sacrificing environmental quality.

Other *San Francisco Master Plan* objectives and policies for Mission Bay include:

- moderation of major new development to complement the city pattern, the resources to be conserved, and the neighborhood pattern;
- improvement of the neighborhood environment to increase personal safety, comfort, pride and opportunity;
- assurance that institutional uses are located in a manner that will enhance their efficient and effective use;
- establishment of a thoroughfares system in which the function and design of each street are consistent with the character and use of adjacent land;
- provision of safe and pleasant space for pedestrians;
- assurance that the provision of new or enlarged parking facilities does not adversely affect the livability and desirability of the city and its various neighborhoods; and
- lessening of traffic and parking impacts of institutions on surrounding residential areas.

San Francisco City Planning Code

The *Mission Bay Plan* would be implemented by the City Planning Code of the City and County of San Francisco. The other principal governing document is the Mission Bay Development

Agreement (between the Catellus Development Corporation and the City and County of San Francisco), which contains implementation regulations, programs, public works projects and financing measures necessary to carry out the Specific Plan. The Development Agreement established the terms and conditions for development within the plan area, and addressed topics such as master facilities plan, infrastructure financing, hazardous materials remediation, housing affordability and linkage, transportation management and economic development. See Chapter 3, Section B, Land Use, for discussion regarding City and County of San Francisco policies and plans related to the Major New Site.

b. Impacts and Mitigation Measures

Impact 12B4-1. Consistency with Local Plans and Codes (Project/Less Than Significant). Development of the Major New Site at Mission Bay would be consistent with local land use plans, zoning codes, and environmental goals, plans and policies.

The entire Mission Bay Planning area is under consideration for the proposed Major New Site. The Major New Site would include development of approximately 2.65 million gsf of institutional uses, including medical research, instruction, academic support, administrative, logistical support and campus community at Mission Bay. Although the LRDP would consider all areas of Mission Bay for the proposed Major New Site, the potential location shown in the Illustrative Site Plan would be near Third and 16th Streets (see Figure 12-5). The *Mission Bay Plan* designates this area for residential, open space and commercial uses.

Chapter 2, Project Description, describes the current status of the *Mission Bay Plan*. Although Catellus Development Corporation has withdrawn from the Mission Bay Development Agreement with the City and County of San Francisco, the *Mission Bay Plan*, and related City Planning Code zoning designations continue to be the applicable local land use control for the Mission Bay area; therefore, this EIR discusses these controls in relation to the potential Major new Site at Mission Bay.

The adopted *Mission Bay Plan* includes about 4,800,000 gsf of office space and 900,000 gsf of service/light industrial/research & development (S/LI/RD) uses. These two categories are envisioned in the *Mission Bay Plan* to include research-related uses. Major New Site uses would include about 1,150,000 gsf of research space and 350,000 gsf of logistics space, which would correspond to the *Mission Bay Plan* specifications for research, service and development uses, and about 1,200,000 gsf of office uses. It is expected, therefore, that development of a Major New Site at Mission Bay would result in a change in the overall *Mission Bay Plan* non-residential land use mix, from the plan's office-oriented uses, with less S/LI/RD activities, to a mix reflecting more emphasis on research-related uses and less office use. It would be expected that the total area of office uses at Mission Bay would be reduced from that envisioned in the *Mission Bay Plan*. Therefore, the Major New Site would change the planned mix and location of uses at Mission Bay. The change in mix of uses would require amendment of the *Mission Bay Plan*. In light of the status of the Development Agreement and likelihood of revisions to the Mission Bay Plan and zoning amendments, the plan amendments which could be necessary to accommodate Major New Site uses would not be considered a significant impact. The potential changes to Mission Bay land uses would depend upon the specific

location selected for the Major New Site. Overall, however, the development of a Major New Site at Mission Bay would be expected to have similar levels of employment-generating uses as the *Mission Bay Plan*. The total number of housing units planned for Mission Bay would be expected to be retained, although the location of housing units could change.

Overall, development of the Major New Site at Mission Bay would be consistent with *Mission Bay Plan* goals to develop a variety of uses, with priority for housing, a mixture of commercial and other employment uses, and appropriate open space throughout the plan area. The Major New Site at Mission Bay would include internal open space and respond to *Mission Bay Plan* objectives to distribute open space throughout the plan area to complement other land uses.

Mitigation Measure 12B4-1. (Less Than Significant). None required.

Impact 12B4-2. Compatibility with Existing Land Uses (Project/Less Than Significant). Development of a Major New Site at Mission Bay would introduce substantial physical changes to the site which would be compatible with the existing land use in the area.

Development of a Major New Site at Mission Bay would improve existing vacant and industrially developed land resulting in a change and intensification of current land uses. The proposed uses would change the existing site character from industrial to research campus uses. However, development of the area is a goal of the *Mission Bay Plan* and would be expected to occur with or without development of the Major New Site, so this change would not be considered adverse.

Mitigation Measure 12B4-2. (Less Than Significant). None required.

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1. Floor Area Ratio (FAR), the ratio between gross floor area of structures on a site and gross site area. Thus, a two-story building covering 50 percent of its site would have a FAR of 1.0, from City of Alameda, *City of Alameda General Plan*, February 1991, p. 146.
 2. Lucian R. Blazej, Director, Department of City Planning, City and County of San Francisco, letter to Mark Buell, Director of Development, Tuntex Inc., October 19, 1992.
 3. UCSF Long Range Development Plan, *Site Screening Study, Harbor Bay*, prepared by EIP Associates, October 7, 1994, p. III-24.
 4. City of Alameda, *City of Alameda General Plan*, February 1991, Table 2-2.
 5. City of Alameda, Zoning, November 1988, pp. 421-422.
 6. City of Alameda, *City of Alameda General Plan*, February 1991, pp. 108-119.
 7. City of Alameda, Zoning, November 1988, pp. 421-422.

8. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 1990, V.III, p. III.1.
9. The Mission Bay Specific Plan area is 299 to 313 acres, depending on whether Port of San Francisco land east of Third Street near Piers 50 to 54 is included.

C. TRAFFIC/CIRCULATION/PARKING

1. DEVELOPMENT SCENARIO

This EIR identifies the Development Scenario and Site-Specific effects of the Major New Site on traffic/circulation/parking at Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay as impacts of implementing the LRDP. However, each of the potential Major New Sites has been designated in approved plans by the relevant local jurisdictions for business park or industrial park. As a result, impacts similar to those identified in this EIR would be expected to occur at these sites whether developed with a Major New Site under the LRDP or with other uses developed by other project sponsors.

This Traffic/Circulation/Parking section describes the sources of traffic and the traffic engineering methodologies used in the analysis of the potential Major New Sites. For each site it evaluates the Level of Service (LOS) on major access corridors, describes transit service, and assesses parking conditions and pedestrian and bicycle circulation. LOS analysis is included for existing conditions and year 2010 conditions, with and without the Major New Site. For the reasons stated below, year 2010 projections have been treated slightly differently for each Major New Site based on the status of local area plans and available traffic analysis models.

The 1996 LRDP includes proposed Transportation Demand Management (TDM) measures that would be part of the Major New Site program. These measures would continue existing TDM strategies and explore further financially viable strategies, including the following:

- Expand the UCSF shuttle system to include the Major New Site.
- Provide preferential and/or low cost parking for carpools and vanpools.
- Cooperate with public and private transit agencies on routes and scheduling of service.
- Cooperate with local public works agencies to improve street lighting, security and pedestrian links between UCSF facilities and BART and other public transit connections.
- Continue to sell transit passes on-site.
- Investigate transit pass subsidies for all employees.

Implementation of all these measures would be expected to reduce net vehicle trip generation from the Major New Sites. The analysis in this section uses trip generation factors based on current UCSF trip patterns (which reflect current TDM activities), adjusted to reflect different locations of the potential Major New Sites. This EIR identifies implementation of additional TDM as a mitigation measure for traffic effects of the Major New Site, but the analysis does not quantify the potential effect of these TDM measures.

a. Future Analysis Years

Future year analysis was conducted for the year 2010 for all sites. Both the Alameda County Congestion Management Agency (CMA) and Metropolitan Transportation Commission (MTC) Models project traffic to the year 2010. The *Brisbane General Plan* forecasts traffic to the year 2013. At Brisbane Baylands/Executive Park, traffic projections could have been taken from a regional model such as the MTC Model or San Mateo County CMA Model, but the projections contained in the *Brisbane General Plan* were considered more relevant than those broader models and the 2013 analysis year is considered comparable to 2010. Therefore, the traffic projected for 2013 in Brisbane was assumed to occur by the year 2010 for purposes of traffic analysis in this EIR. The sources of traffic data and the rationale for choosing those sources are described in Chapter 3.C.3, Impact Methodology.

b. Assessment of Future Conditions Without Project

Each potential Major New Site is designated for mixed-use development and has been subject to review at least at the General Plan level, including transportation analyses that assume development of the sites. Local jurisdictions such as the City of Brisbane and the City of Alameda assume development of these sites in their consideration of future traffic conditions. However, for purposes of identifying the potential traffic and circulation effects of development of the Major New Site in the year 2010, the analysis of each Major New Site in this EIR includes both a 2010 without the Major New Site scenario and a 2010 with Major New Site scenario. The two scenarios allow Major New Site effects to be quantified and compared to standards of significance for transportation impacts. The relationship of the development assumptions in each jurisdiction's adopted plans to the Major New Site is discussed in detail in the site-specific analysis in this section.

In general, the following assumptions were made:

- For the Brisbane Baylands portion of the Major New Site at Brisbane Baylands/Executive Park, future traffic conditions with development of a Major New Site would be similar to those analyzed for *Brisbane General Plan* Scenario K. That scenario analyzed a high-traffic-generating mix of retail uses that represents the maximum development potential of the Baylands. For Executive Park, the 2010 analysis assumes buildout of the adopted Executive Park Subarea Plan of the *San Francisco Master Plan*.
- The *Brisbane General Plan* projects future traffic conditions for the year 2013, while this EIR assumes an LRDP buildout year of 2010, which is also consistent with the MTC regional traffic model projections. Because of the uncertainty involved with projecting development and traffic conditions ten years or more in the future, the 2013 Brisbane analysis year would be generally comparable to a 2010 analysis year for other UCSF sites. Therefore, this EIR uses 2010 as the future analysis year for all Major New Sites.
- For Harbor Bay, the *Harbor Bay Master Plan* assumes development of a large research and development park. However, the Alameda County CMA Model

assumes that only a portion of the remaining development potential at Harbor Bay would be developed by the year 2010. The employment projections upon which the CMA Model relies would not encompass both existing development and the Major New Site. For this reason, CMA traffic projections were adjusted upward to include the Major New Site. With these assumptions the analysis includes full buildout of the Harbor Bay Business Park.

- For Mission Bay, the *Mission Bay Plan* includes a large employment component. While a Major New Site would fit within the total development of the *Mission Bay Plan*, the MTC Model for the year 2010 includes only a portion of the total housing and employment projected to occur at buildout of the *Mission Bay Plan*. The MTC Model for 2010 was judged to provide a more reliable estimate of regional traffic in year 2010 than the Mission Bay Plan projections. Therefore, the MTC model was used, and it was assumed that a Major New Site at Mission Bay would be an additional increment of development above the development projections in the MTC model and Association of Bay Area Governments (ABAG) employment projections. As discussed in Chapter 3, Methodology, Catellus Development Corporation has withdrawn from the Mission Bay Development Agreement with the City and County of San Francisco and is expected to prepare an alternative land use plan for portions of the Mission Bay Site. However, the Mission Bay Plan and zoning are still in effect and are therefore used in this traffic analysis.
- The proposed Major New Site population and person-trip generation estimates would be consistent for all potential Major New Sites, as described in the Development Scenario.

Table 12-1 presents the person-trip generation estimate for the Major New Site. Person-trip generation estimates were based on the LRDP's population projections for the Major New Site. The analyses herein use a higher estimated number for visitors and vendors than used in the LRDP to reflect a more conservative traffic analysis. The Major New Site is projected to generate about 20,200 average weekday person-trips (see Table 12-1). About ten percent of total daily trips would be expected to be internal to the Major New Site because services and amenities would be included as part of the site. The net external person-trips for a Major New Site is then estimated to be about 18,400.

Different assumptions regarding vehicle trip generation, traffic distribution/assignment, and parking demand were used for each Major New Site because the location of each Major New Site would affect transportation mode choice at that site. Therefore vehicular, transit, pedestrian, bicycle and parking impacts would vary for each Major New Site. In general, the Mission Bay site analysis assumes a much higher use of transit than the other sites because of the relatively high use of transit in San Francisco compared to Alameda or Brisbane and the site's proximity to existing transit services. The Harbor Bay and Brisbane Baylands/Executive Park site analyses assume a more typical mode split for a research and development facility and thus have higher vehicle generation characteristics.

**TABLE 12-1 MAJOR NEW SITE
DAILY PERSON TRIP GENERATION CALCULATIONS**

Major New Site Population Data	AVERAGE WEEKDAY POPULATION			WEEKDAY PERSON TRIPS			
	User Population ¹	Absentees ² (11%)	Ave Wkdy Population	Trip Ends Per User ³	Total Trips	Internal Trips ⁴	Net External Trips
Faculty	410	45	365	2	814	81	732
Professional Researchers	6,150	677	5,474	2	12,206	1,221	10,985
Employees	2,530	278	2,252	2	5,021	502	4,519
Visitors ⁵	770	N/A	770	2	1,540	0	1,540
Vendors/Service ⁵	300	N/A	300	2	600	0	600
TOTALS (rounded):	10,160	1,000	9,160		20,181	1,804	18,377

Notes:

1. User population was provided by EIP Associates in a memorandum dated March 17, 1995.
2. Wilbur Smith Associates, *UCSF LRDP Parking Demand Estimates*, February 22, 1994.
Based on historical data gathered at UCSF sites.
3. Trip ends per user are based on the 1982 *UCSF LRDP EIR* for faculty, professional researchers and employees.
Visitors and vendors are assumed to have two trip ends per user (one inbound and one outbound).
4. Assumes 10 percent internal trips for faculty, researchers and employees. This is a conservative assumption, i.e., underestimates internal trips.
5. UCSF estimates for visitors, vendors, and service population data were doubled to be conservative.

Source: Fehr & Peers, 1995.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Existing traffic conditions at Brisbane Baylands/Executive Park were assembled using data collected for the *City of Brisbane General Plan EIR*, the *CalTrain Station Location Study*, *1993 Traffic Volumes on California State Highways*, and the *San Francisco Municipal Railway Short-Range Transit Plan and Capital Improvement Program 1993-2002*.¹

Vehicular Access

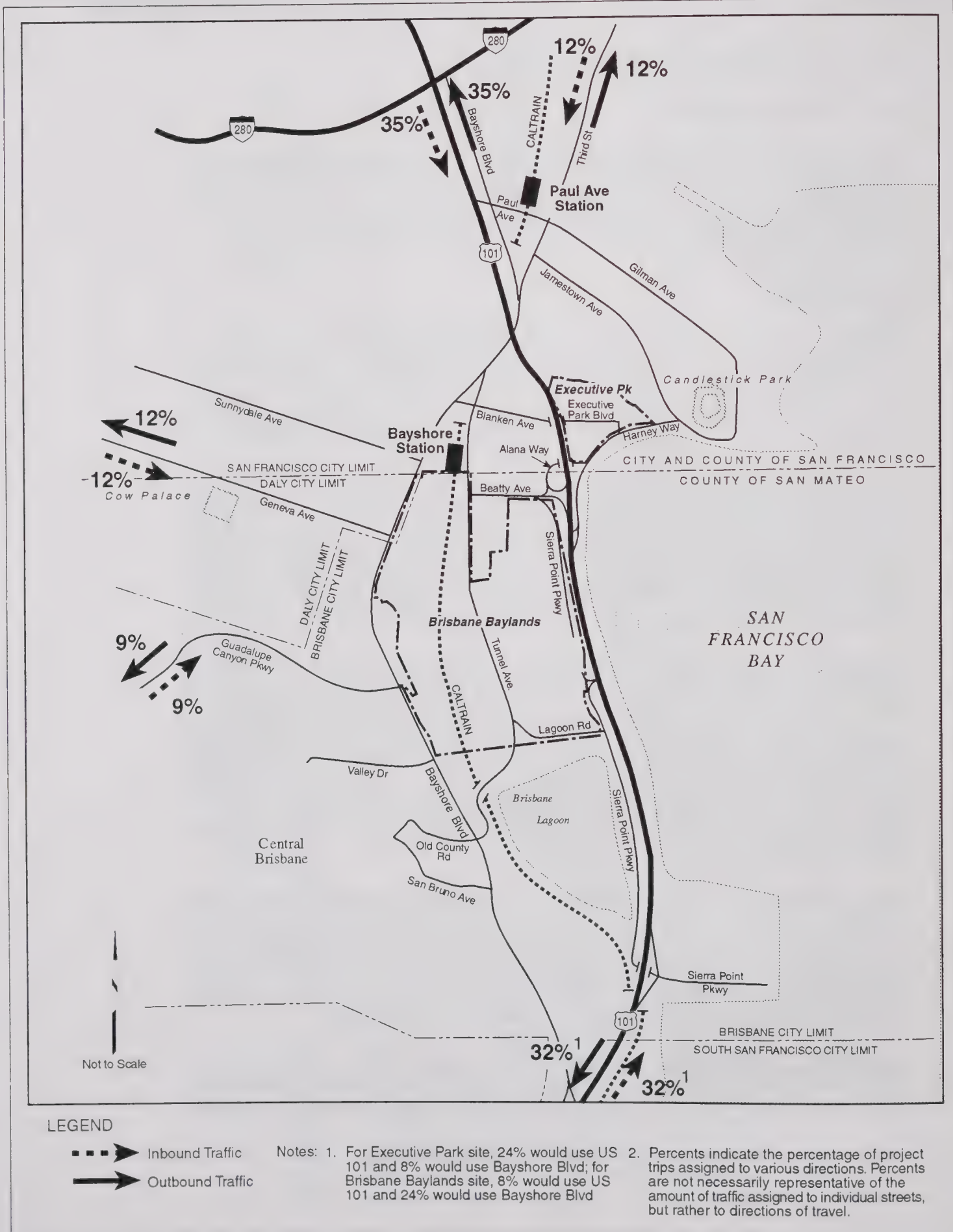
Brisbane Baylands/Executive Park is easily accessible from US 101. Northbound ramps to US 101 include Harney Way and Sierra Point Parkway; southbound ramps are located at Alana Way and Sierra Point Parkway (see Figure 12-6). The daily and peak-hour volumes, capacities and Levels of Service (LOS) on the study corridors in the Brisbane Baylands/Executive Park vicinity are presented in Table A-3-10 (see Appendix 3), and are summarized below.

US 101 (Bayshore Freeway) is a north-south freeway that connects San Francisco with Marin County via the Golden Gate Bridge and with the East Bay via the Bay Bridge. To the south, US 101 provides access to San Francisco International Airport, I-280, San Mateo County, Santa Clara County and the East Bay via the San Mateo Bridge and the Dumbarton Bridge. North of the Brisbane Baylands/Executive Park site at Cesar Chavez Street, US 101 carries an Average Daily Traffic (ADT) of 285,000 in both directions, and operates at LOS E/F. Just south of Executive Park, US 101 carries an ADT of 175,000, and operates at LOS E/F.

Third Street is a major north-south arterial that parallels I-280 and US 101 in San Francisco and provides access to the Bayshore neighborhood and the Financial District of San Francisco. Third Street serves as a bypass route to US 101 and I-280 during peak commute periods. Those counts reflect traffic conditions on Third Street before the I-280/US 101 connector re-opened fully in late 1995. With the re-opening of the I-280/US 101 connector, volumes on Third Street should decrease as traffic using Third Street shifts to I-280. At its junction with US 101 near Candlestick Park, Third Street connects with Bayshore Boulevard and continues south to Brisbane and South San Francisco. North of Executive Park, Third Street carries an ADT of 31,660, and operates at LOS D.²

Bayshore Boulevard is the main north-south arterial near Brisbane Baylands in the City of Brisbane. To the south, it becomes Airport Boulevard in South San Francisco. Bayshore Boulevard parallels US 101 and serves as a bypass route during commute peak periods. According to the *Brisbane General Plan EIR*, Bayshore Boulevard has an ADT of 22,500 south of Sunnydale Avenue and 16,000 north of Guadalupe Canyon Parkway. It operates at LOS D, both south of Sunnydale Avenue and north of Guadalupe Canyon Parkway.

Jamestown Avenue provides access to, and serves the parking lots of, Candlestick Park from Third Street, while also serving as an alternative route to Executive Park. According to February 1994 counts, Jamestown Avenue carries an ADT of 4,460 and operates at LOS A.³



This traffic volume represents an average day on which no games or events are held at Candlestick Park.

Harney Way and Alana Way provide US 101 access to Executive Park and Candlestick Park (see Figure 12-6). North of Thomas Mellon Drive, Harney Way carries an ADT of 2,490, and operates at LOS A.⁴ This traffic volume represents an average day on which no games or events are held at Candlestick Park. Alana Way connects US 101 southbound ramps to Brisbane Baylands, via Beatty Avenue and Sierra Point Parkway, and to Executive Park and Candlestick Park via Harney Way. Alana Way has an ADT of 3,070 and operates at LOS A. This traffic volume represents an average day on which no games or events are held at Candlestick Park.

Beatty Avenue is an east-west arterial that connects Tunnel Avenue to US 101 southbound ramps. Beatty Avenue, which is in poor condition, currently provides access to several industrial uses. Beatty Avenue carries an ADT of 1,300 and operates at LOS C.

Geneva Avenue is a major east-west arterial from Bayshore Boulevard on the Daly City/Brisbane border running west to I-280 near Ocean Avenue in San Francisco. Geneva Avenue is also the primary access route to the Cow Palace in Daly City. Geneva Avenue carries an ADT of 19,200 west of Schwerin Street in Daly City and operates at LOS D.

Guadalupe Canyon Parkway connects Bayshore Boulevard to I-280 over the San Bruno Mountain. Guadalupe Canyon Parkway carries an ADT of 10,780 east of Carter Street and operates at LOS B.

Public Transit

Public transit service to the Brisbane Baylands/Executive Park area includes MUNI, SamTrans and CalTrain. The CalTrain Bayshore Station, located near Tunnel Avenue, provides rail service between San Francisco, San Mateo and Santa Clara counties. The following is a description of current transit service lines to the Brisbane Baylands/Executive Park area.

The 9-San Bruno MUNI line serves the San Francisco Financial District, the Mission District, Bernal Heights, and Visitacion Valley to Bayshore Boulevard and Geneva Avenue. Commute-period express lines also include 9X, 9AX and 9BX routes. On Market Street, the 9-San Bruno route serves other transit carriers in downtown San Francisco.

The 15-Third MUNI line serves Fisherman's Wharf, North Beach, the Financial District, the Montgomery Street MUNI Metro/BART Station, the Transbay Terminal, Mission Bay, Bayshore, Hunters Point, Visitacion Valley, the Excelsior, the Balboa Park MUNI Metro/BART Station and the San Francisco City College campus. At the CalTrain Terminal, the Transbay Terminal and other downtown San Francisco stops, the 15-Third provides connections to other regional transit carriers and MUNI lines serving most areas of San Francisco.

The 56-Rutland is a local MUNI route which serves Executive Park and the vicinity of San Bruno Avenue/Mansell Street. The line is a feeder route to other MUNI lines in the Visitacion Valley.

SamTrans Route 7B operates on Bayshore Boulevard in San Francisco and Brisbane, and connects the Transbay Terminal, San Francisco International Airport and Redwood City.

SamTrans Route 24B operates on Bayshore Boulevard between the Cow Palace in Daly City, where a transfer to MUNI route 9-San Bruno is provided, and the Tanforan Park Mall in San Bruno. Route 24B also loops through central Brisbane.

CalTrain serves communities from San Francisco to San Mateo County and Santa Clara County (San Jose and Gilroy). The Bayshore Station is near Tunnel Avenue and near the northern end of the Brisbane Baylands. Currently, service is provided every 30 minutes between San Francisco and San Jose or Gilroy during weekdays, with more frequent morning and afternoon commute hour service. On Saturdays, trains provide service to San Jose on an hourly basis, except during early morning and late evening hours when service is provided every two hours. On Sundays, trains are scheduled every two hours.

Parking

Brisbane Baylands is generally undeveloped and has no major parking areas. Executive Park is partially developed, with existing parking of approximately 710 striped spaces. In addition, a 25-acre gravel parking area is available to the north of the existing buildings. During Candlestick Park events, vehicles associated with the events park at Executive Park facilities and on streets in northern parts of the Brisbane Baylands area near Tunnel Avenue. On-street parking on some residential streets near Candlestick Park is restricted on event days.

Pedestrian and Bicycle Circulation

Currently, there are no pedestrian or bicycle facilities on the access roads to Brisbane Baylands and Executive Park. Sidewalks exist within Executive Park.

Site-Specific Standards and Methods

Brisbane Baylands

Brisbane General Plan policies do not designate a fixed set of land uses in Brisbane Baylands, but rather propose that total development in the Brisbane Baylands meet City of Brisbane traffic performance standards.

The *City of Brisbane General Plan EIR* reviews several development scenarios for the Brisbane Baylands site.⁵ Among these scenarios is a medical research and development campus. Another of the development scenarios, Scenario K, identifies the maximum possible traffic that could be generated from the Brisbane Baylands site without causing level of service deteriorations below traffic performance standards, which are peak hour LOS D for non-residential streets, and LOS C for residential streets (with completion of reasonably foreseeable mitigation). Scenario K is considered the maximum buildout scenario for Brisbane Baylands.

Major New Site uses would generate less traffic than Scenario K because Scenario K assumes a higher level of trip generation than would result from development of the 1.7 million gsf projected for Brisbane Baylands with the Major New Site. Therefore, Major New Site uses would be consistent with *Brisbane General Plan* policies for traffic performance standards.

Executive Park

Future conditions with and without the Major New Site at Executive Park have been analyzed for the year 2010. These projections have been derived by applying growth levels from the Brisbane Baylands area to the Executive Park area. Due to the proximity of these two sites, it is reasonable to assume that they would experience similar levels of traffic growth during the LRDP planning period. The application of similar growth levels to Brisbane Baylands and Executive Park results in some varying levels of traffic growth for streets in the vicinity of Brisbane Baylands, but the overall growth rate is 35 percent or greater (between 1995 and 2010) within the Executive Park area. This level of growth represents worst-case conditions. The City of San Francisco considers a significant level of service deterioration to be lower than LOS D.

For Executive Park, future traffic demand on access corridors is forecast by first adding estimated background and Brisbane Baylands development growth which would include the portion of the Major New Site at Brisbane Baylands, then adding estimated traffic generated by the Executive Park portion of the Major New Site. The analysis also accounts for the two office buildings that would be demolished at Executive Park to accommodate the Major New Site uses, by subtracting trips that would be generated by uses in the two buildings.

Regional Forecasts

Because the *Brisbane General Plan* does not include forecasts for US 101, these were taken from the MTC Model. At the Brisbane Baylands and Executive Park sites, the MTC Model assumes that only a portion of the total development potential of the sites would be realized by the year 2010. For this reason, traffic associated with the Major New Site at Brisbane Baylands/Executive Park was added to MTC forecasts for US 101 to provide a conservative analysis.

Cumulative Baseline Analysis (Year 2010)

Analysis Approach

Future travel demand in the vicinity of Brisbane Baylands is estimated in the *City of Brisbane 1993 General Plan EIR*. For the analysis of the Brisbane Baylands site in this EIR, the *General Plan EIR* Scenario K, which represents the equivalent of buildout with research and institutional uses, is used to reflect conditions with the Major New Site. Scenario K conditions would include cumulative long-term background growth, long-term *Brisbane General Plan* development, and intensified Brisbane Baylands development. The 2010 without Major New

Site conditions were calculated by subtracting the Major New Site traffic from Scenario K traffic.

Planned Transportation Improvements

The following long-term improvements in the regional transportation system were assumed to be in place in the *Brisbane General Plan EIR* Scenario K. The General Plan EIR Scenario K analysis took the effects of these improvements into account in estimating future model splits between auto and transit ridership:

- Relocation of the Bayshore CalTrain Station to a site within the Baylands area
- Completion of BART Extensions Program: (The BART Colma extension was opened in February 1996; the San Francisco International Airport extension is in planning.)
- Construction of a CalTrain station near Central Brisbane
- Shuttle/feeder service between the Brisbane CalTrain station and Central Brisbane
- Enhancement of local SamTrans bus service to and from Brisbane
- Extension of CalTrain to downtown San Francisco
- Extension of MUNI light rail service from the Third Street corridor to a Brisbane site
- Extension of light rail services to CalTrain stations in San Francisco by MUNI and in Santa Clara County by the Santa Clara County Transportation Agency
- Electrification of CalTrain service
- Completion of US 101 interchange improvements in San Mateo and San Francisco counties (these do not include a new interchange at a Geneva Avenue Extension)
- Completion of US 101/I-280 interchange reconstruction in San Francisco
- Completion of Central Freeway reconstruction in San Francisco
- Completion of the Waterfront Transportation projects in San Francisco
- Completion of MTC TravInfo Project (a traveler information project to maximize the capacity of existing transportation facilities)
- Increase in employee-based car/vanpooling programs
- Increase in employer-based transit subsidies

- Increase in flexible and staggered work hours
- Reduction of employer-subsidized parking spaces

If some of these improvements were not implemented, the result would not be more vehicle trips. Rather, because the *Brisbane General Plan* ties the level of development at Brisbane Baylands to traffic conditions, it may not be possible to realize the full development potential for Brisbane Baylands assumed in the *Brisbane General Plan* if some of these improvements were not implemented.

Project-Generated Traffic

Trip Generation

Of the Major New Sites, Brisbane Baylands/Executive Park is unique in that uses would be split between two parcels which are not contiguous. Theoretically, this could affect vehicle trip generation assumptions for this Major New Site. The transportation analysis assumes the ten percent of the traffic generated at a Major New Site would be internal traffic (trips to and from other on-site uses). At a Major New Site at Brisbane Baylands/Executive Park, some of the assumed internal trips could involve trips between the two parcels. However, most of these trips would be assumed to occur during off-peak periods and would not affect peak hour traffic conditions analyzed in this EIR. In addition, UCSF would be expected to provide a shuttle service between the two parcels at Brisbane Baylands/Executive Park. Because of these factors no additional adjustments were made to the vehicle trip generation at this Major New Site to account for the split parcel nature of the site.

The Major New Site would generate approximately 18,400 external person trips on a weekday (see Table 12-1 in the Development Scenario subsection). Table 12-2 provides a breakdown of person-trips by travel mode. Development of a Major New Site at Brisbane Baylands/Executive Park would generate about 14,000 daily vehicle trips. During the am peak hour, the Major New Site at Brisbane Baylands/Executive Park would generate 2,240 vehicle trips (16 percent of daily generation), and during the pm peak hour, it would generate about 2,100 vehicle trips (15 percent of daily generation). The peak-hour percentages reflect rates from Institute of Transportation Engineers' (ITE) *Trip Generation* for a "Research and Development Center."⁶ Mode split rates were derived from the *City of Brisbane 1993 General Plan EIR* (transit and bicycle/pedestrian) and surveyed results from other UCSF sites (carpool/vanpool).⁷ UCSF provides extensive carpool/vanpool service activities; therefore the analysis assumes a higher mode share for carpools and vanpools at a UCSF site than would be assumed for a typical office park use. These peak-hour and mode-split assumptions were used for both the Brisbane Baylands and the Executive Park sites as they would share similar trip generation characteristics, based on their physical proximity.

TABLE 12-2 BRISBANE BAYLANDS/EXECUTIVE PARK
MODE SPLIT CALCULATIONS

Land Use	PROJECTED MODE SPLIT												Daily Vehicle Trips ⁴
	Drive Alone		Drop-Off		Carpool		Vanpool		Transit		Bicycle/Walk		
	%	#	%	#	%	#	%	#	%	#	%	#	
Faculty ¹	73%	533	1%	9	11%	81	4%	29	10%	73	1%	7	594
Professional Researchers ¹	64%	7,009	1%	132	15%	1,648	9%	989	10%	1,099	1%	110	8,195
Staff ¹	64%	2,883	1%	54	15%	678	9%	407	10%	452	1%	45	3,371
Visitors ²	73%	1,121	1%	18	11%	169	4%	62	10%	154	1%	15	1,249
Vendors/Service ³	100%	600	0%		0%		0%		0%		0%	0	600
Total (rounded)		12,146		213		2,576		1,486		1,778		177	14,009

Notes:

1. Based on Wilbur Smith Associates *UCSF LRDP Journey to Campus Data Analysis*, September 1991, Table 5.
2. No data are available on modal splits for visitors, so faculty splits were applied as faculty drive-alone rates are higher than those for staff.
3. As a conservative assumption it is assumed that all vendors and service trips will be drive-alone vehicle trips.
4. Vehicle trips are calculated based on the following formula: (Drive Alone trips) + (Drop-Off trips x 2) + (Carpool trips / 2) + (Vanpool trips / 10).

Trip Distribution

Existing traffic patterns in Brisbane show that approximately 60 percent of the trips departing the area in the pm peak hour are destined for areas in the north and 40 percent are destined for areas in the south. The *General Plan EIR* transportation analysis assigns future trips among US 101, Bayshore Boulevard, Geneva Avenue and Guadalupe Canyon Parkway. Based on those factors, a directional distribution pattern was derived for the Major New Site from both Brisbane Baylands and Executive Park as they would share similar characteristics (see Figure 12-6). On the local street level, route assignment was based on factors such as distance, available capacity, delay and access convenience.

b. Impacts and Mitigation Measures

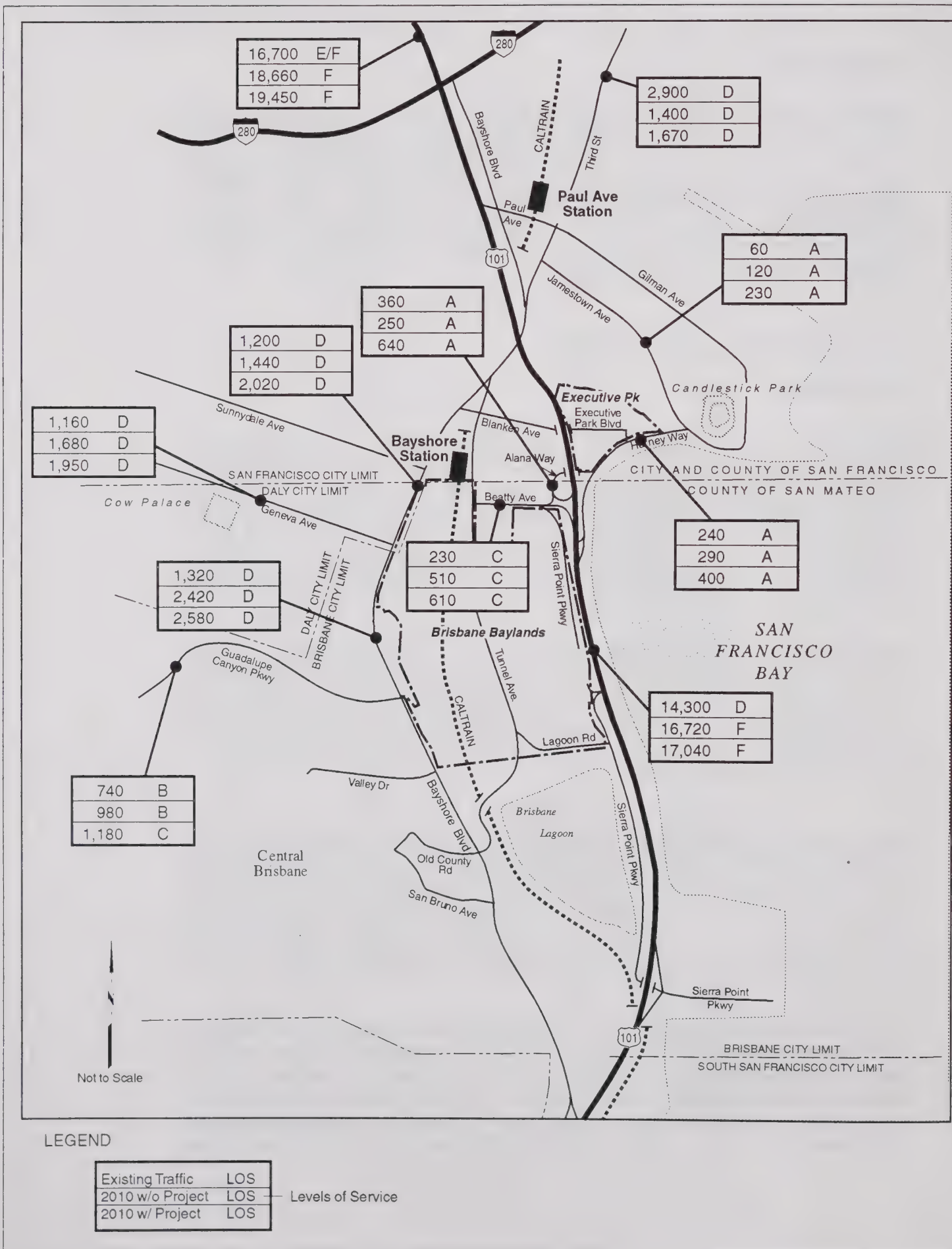
Vehicle Traffic

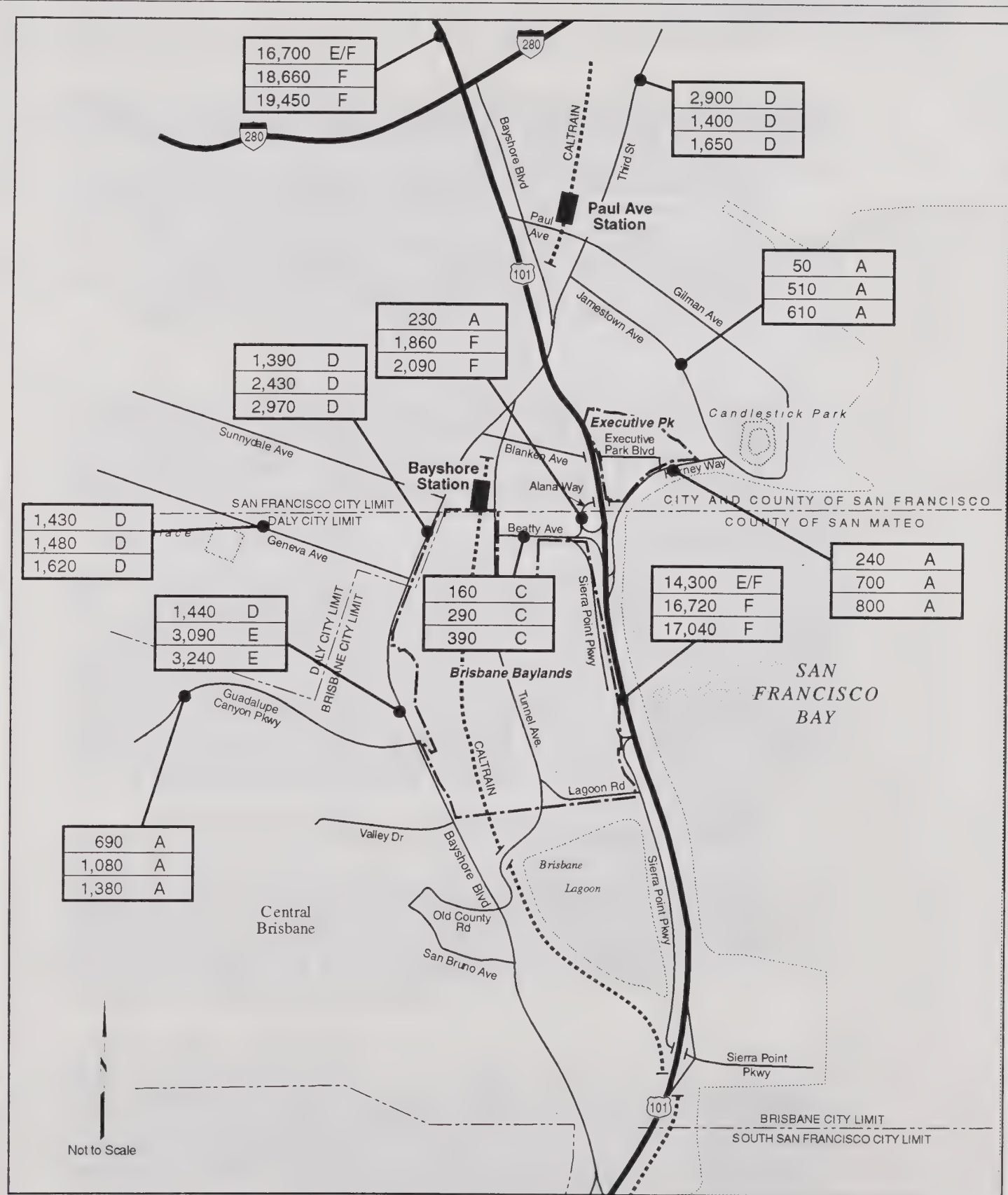
Year 2010 daily and peak hour volumes, capacities and LOS on the corridors in the Brisbane Baylands/Executive Park vicinity with the Major New Site are presented in Table A-3-11 in Appendix 3. Volumes on Third Street in 1995 are projected to be substantially lower in 2010, due to the re-opening of the US 101/I-280 connections in late 1995. Figures 12-7 and 12-8 compare existing and year 2010 traffic volumes with and without the Major New Site. Traffic generated by the Major New Site at Brisbane Baylands/Executive Park would result in significant effects at the following corridors in the vicinity: US 101, Bayshore Boulevard and Alana Way.

As shown on Figures 12-7 and 12-8, traffic growth projected without development of the Major New Site would result in reduced LOS at the following corridors in the vicinity (i.e., change LOS from LOS D or better to LOS E or F, or change LOS E or E/F to F.): US 101 near Brisbane from LOS D or E/F to LOS F (am and pm); US 101 north of I-280 from LOS E/F to LOS F (am and pm); Bayshore Boulevard south of Geneva from LOS D to LOS E (pm); Alana Way from LOS A to LOS F (pm).

Impact 12C2-1. US 101 Volume/Capacity Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site at Brisbane Baylands/Executive Park would result in the deterioration of US 101 LOS F conditions by v/c ratios of 0.04 south of Cesar Chavez Street and 0.02 south of Candlestick Park connections during both the am and pm peak hours. Under year 2010 conditions without the Major New Site at Brisbane Baylands/ Executive Park, US 101 would already operate at LOS F. This deterioration of v/c ratio would be a significant impact.

US 101 currently operates at capacity (LOS E/F) and is projected to operate at LOS F in 2010. The Major New Site would add 790 vehicle trips to US 101 in both the am and pm peak hours south of Cesar Chavez Street and 320 vehicle trips to US 101 in both the am and pm peak hours south of Candlestick Park connections in year 2010. This would cause a 0.04 deterioration in the v/c ratio for US 101 south of Cesar Chavez Street in both the am and pm peak hours, and 0.02 deterioration of the v/c ratio south of Candlestick Park connections in both the am and pm





LEGEND

Existing Traffic	LOS	Levels of Service
2010 w/o Project	LOS	
2010 w/ Project	LOS	

peak hours. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because the LOS is or would be at LOS E or F on these corridors.

Mitigation Measure 12C2-1. (Significant/Unavoidable). The LRDP proposals for a Major New Site would include TDM measures designed to reduce vehicle trip generation from UCSF uses. Implementation of TDM would likely reduce, but not avoid, the significant adverse effects of Major New Site traffic on US 101. Even with the projected improvements to US 101, it is still expected to operate at LOS F in the future, with or without traffic from the Major New Site.

Impact 12C2-2. Bayshore Boulevard Volume/Capacity Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site would result in the deterioration of LOS E conditions on Bayshore Boulevard north of Guadalupe Canyon Parkway during the pm peak hour by a v/c ratio of 0.05. Bayshore Boulevard north of Guadalupe Canyon Parkway would already operate at LOS E under year 2010 conditions without the Major New Site. This deterioration of the v/c ratio would be a significant impact.

Bayshore Boulevard north of Guadalupe Canyon Parkway currently operates at LOS D. Under year 2010 conditions without the Major New Site at Brisbane Baylands/Executive Park, Bayshore Boulevard north of Guadalupe Canyon Parkway would operate at LOS D in the am peak hour and LOS E in the pm peak hour. The Major New Site would add 160 vehicle trips in the am peak hour to Bayshore Boulevard north of Guadalupe Canyon Parkway and 150 vehicle trips in the pm peak hour to this corridor. This would result in a deterioration of the pm peak-hour v/c ratio by 0.05. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because the LOS for Bayshore Boulevard north of Guadalupe Canyon Parkway in the pm peak hour is or would be already at E or F.

Mitigation Measure 12C2-2. (Less Than Significant). The segment of Bayshore Boulevard from Guadalupe Canyon Parkway to Geneva Avenue has two lanes in each direction with a painted median. There is sufficient curb-to-curb width to add one travel lane in each direction from Guadalupe Canyon Boulevard to Main Street and, if there are no constraints, to Geneva Avenue. This would improve the LOS to an acceptable level LOS D. *Implementation of these measures would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C2-3. Alana Way V/C Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site would cause a 0.04 deterioration of the v/c ratio for Alana Way in the pm peak hour. Since Alana Way would already be operating at LOS F under year 2010 conditions in the peak hour without the Major New Site, this deterioration of the v/c ratio would be a significant impact.

Alana Way currently operates at LOS A during both the am and pm peak-hour periods. Under 2010 conditions without the Major New Site, Alana Way would operate at LOS A in the am

peak hour and LOS F in the pm peak hour. The Major New Site would add 390 vehicle trips to Alana Way in the am peak hour and 230 vehicle trips in the pm peak hour. This would cause a 0.04 deterioration of the v/c ratio for the pm peak hour. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because Alana Way in the pm peak hour would be at LOS F.

Mitigation Measure 12C2-3. (Less Than Significant). Adding northbound lanes on Alana Way would improve traffic conditions on this corridor. Sufficient right-of-way exists in the northbound direction to add one or more lanes. This would improve the LOS to an acceptable LOS D. *Implementation of these measures would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C2-4. Increase in Transit Ridership (Project/Less Than Significant). The Major New Site at Brisbane Baylands/Executive Park would add about 1,780 trips per day, and 280 pm peak hour trips to MUNI, SamTrans and CalTrain lines serving the area. These trips would be accommodated within the expected capacity of the carriers.

The Major New Site at Brisbane Baylands/Executive Park would add about 1,780 transit trips per day (see Table 12-2). These would include BART (via buses or shuttles), MUNI, SamTrans and CalTrain riders. The transit capacity serving the Brisbane Baylands/Executive Park area is adequate to accommodate these new transit trips. However, currently there is little direct transit service to either Brisbane Baylands or Executive Park. No bus routes serve Tunnel Avenue in Brisbane Baylands and only MUNI's 56-Rutland line directly serves Executive Park. The only convenient main-line transit access is the CalTrain Bayshore Station at Tunnel Avenue at the north end of the Baylands. The *Brisbane General Plan* assumes that CalTrain would relocate the Bayshore station, if necessary, to improve access to the Baylands area. Other bus routes would be expected to be modified to serve the sites.

Mitigation Measure 12C2-4. (Less Than Significant). None required.

Impact 12C2-5. Increase in Parking Demand (Project/Less Than Significant). The Major New Site at Brisbane Baylands/Executive Park would have a peak demand for about 5,520 parking spaces (3,280 at Brisbane Baylands and 2,240 at Executive Park). The LRDP proposes to provide adequate parking at a Major New Site to meet demand. Therefore, this would not be a significant effect.

The LRDP calls for development of sufficient on-site parking to meet projected demand at the Major New Site. On the basis of the trip generation analysis, the Major New Site at Brisbane Baylands/Executive Park would have an estimated peak demand of about 5,520 parking spaces during a typical weekday peak hour, as shown in Table 12-3. The estimated demand of 5,520 spaces is less than the 7,200 spaces estimated in the LRDP. The 7,200-space estimate was based on a ratio of three parking spaces per 1,000 gsf of building area. Actual parking supply would be based on site location and characteristics (i.e., proximity to and availability of transit and other non-single-rider vehicle transportation) and, in the case of Brisbane Baylands/Executive Park, a minimum parking supply of 5,520 would be provided. Therefore,

**Table 12-3 BRISBANE BAYLANDS/EXECUTIVE PARK
AVERAGE WEEKDAY PARKING DEMAND ESTIMATES**

Population Categories	Average Weekday Vehicle Trips¹	Peak-Hour Parking Demand Estimates²
Faculty	594	249
Professional Researchers	8,195	3,442
Staff	3,371	1,416
Visitors	1,249	231
Vendors/Service	600	180
Total	14,009	5,518

Notes:

1. Table 12-2
2. Parking demand estimates assume that 84 percent of faculty/professional researchers/staff, 37 percent of visitors and 60 percent of vendors are on-site during the peak parking demand period. This is consistent with existing data from Wilbur Smith Associates, *UCSF LRDP Parnassus Parking Demand Estimates Discussion Paper*, Table 5, May 16, 1994.

there would be no off-site parking impact provided this supply were developed at the Major New Site. Currently, Candlestick Park events generate parking use at Executive Park and local streets near the northern end of Brisbane Baylands. Development of Brisbane Baylands and Executive Park would increase the availability of parking for evening and weekend Candlestick Park events. Weekday night games would not be expected to generate peak parking demands at Candlestick Park.

Mitigation Measure 12C2-5. (Less Than Significant). None required.

Impact 12C2-6. Increased Bicycle/Pedestrian Activity (Project/Significant). The trip generation analysis estimates that the Major New Site would generate up to 178 bicycle/pedestrian trips per day (106 from Brisbane Baylands and 72 from Executive Park). This could create potential circulation and safety conflicts between vehicle and bicycle/pedestrian traffic. Except for sidewalks within Executive Park, no bicycle/pedestrian facilities are provided on the immediate access roads to the Major New Site.

Mitigation Measure 12C2-6. (Less Than Significant). Bike lanes/paths and pedestrian sidewalks should be installed on Harney Way, Alana Way, Beatty Avenue and Tunnel Avenue. As sidewalks already exist along Bayshore Boulevard and Third Street, this would close existing gaps for pedestrian access to the two sites. This would reduce potential circulation and safety issues to a less than significant level. *Implementation of these measures would be within the jurisdiction or responsibility of agencies other than UCSF.*

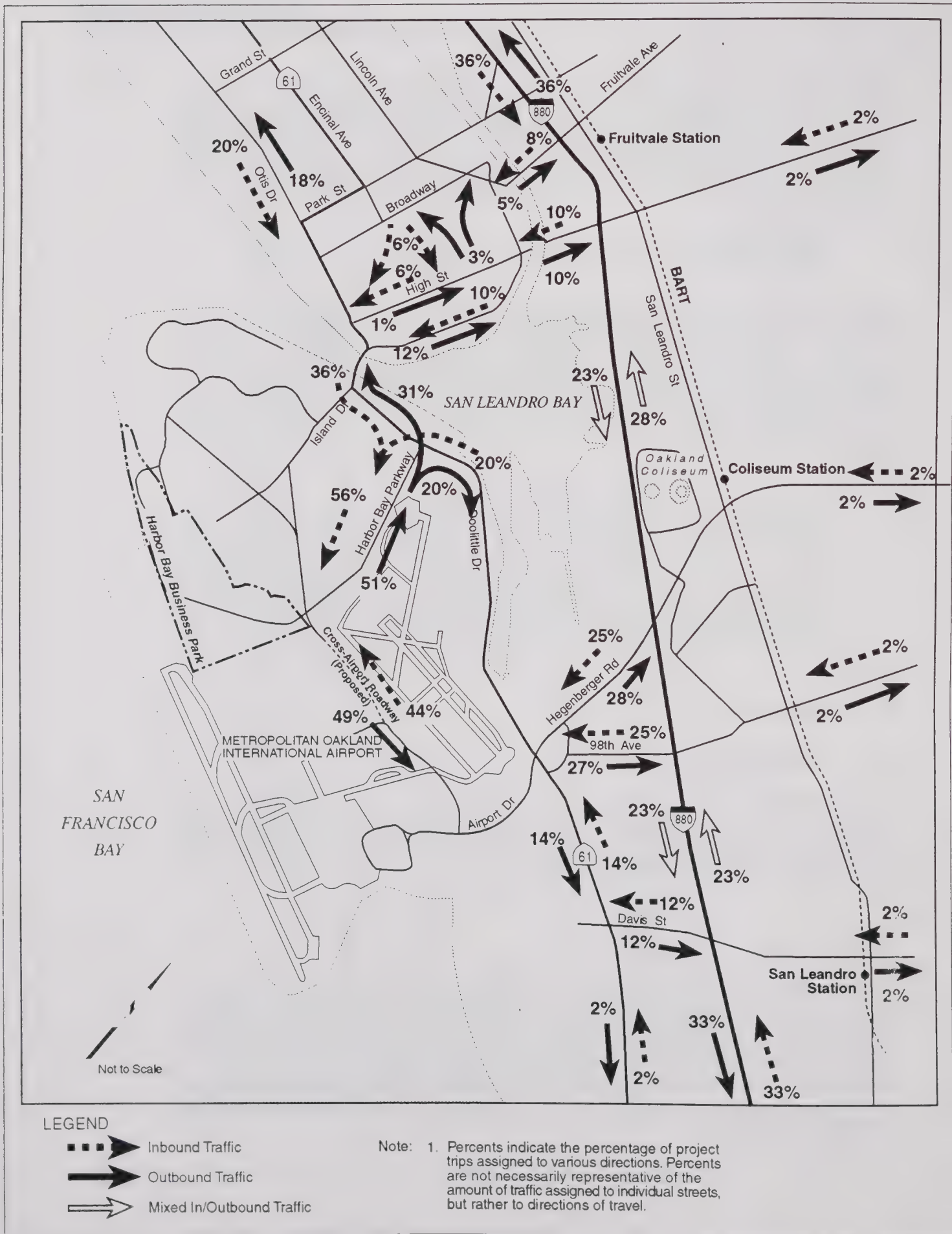
3. HARBOR BAY

a. Site-Specific Setting

Existing information on traffic conditions for the Major New Site at Harbor Bay includes data collected for Harbor Bay and surrounding areas and new data collected in 1995 for this EIR. Other data was gathered from the *City of Alameda General Plan*, the *Cross-Airport Roadway EIR*, and *1993 Traffic Volumes on California State Highways*.⁸

Vehicular Access

Harbor Bay Parkway provides access from the north to the Harbor Bay Business Park and the Major New Site. From the south, Doolittle Drive (SR 61) connects Harbor Bay Parkway to I-880 at Hegenberger Road, 98th Avenue and Davis Street. From the north, Harbor Bay Parkway connects to Island Drive, via Maitland Drive, the Bay Farm Island Bridge and Alameda Island, to I-880 at High Street (see Figure 12-9). To reach the I-880/High Street interchange from Harbor Bay requires travel through two drawbridges and a residential area in the south end of the Island of Alameda.



Source: Fehr & Peers Associates, Inc. Transportation Consultants, 1996.

The existing daily and peak-hour volumes, capacities and Levels of Service (LOS) on the study corridors in Harbor Bay are presented in Table A-3-13, Appendix 3. Average Daily Traffic (ADT) figures listed below are rounded from figures in Table A-3-13.

I-880 is a major north-south freeway between US 101 in Santa Clara County and I-80, the Bay Bridge and other regional freeways to the north. Near the City of Alameda, I-880 carries an ADT of 186,000 in both directions and operates at LOS D.

Doolittle Drive is a major arterial that provides primary access to Harbor Bay Parkway. It connects the City of Alameda (via Bay Farm Island Bridge) to the City of San Leandro (via Davis Street). South of Harbor Bay Parkway, Doolittle Drive carries an ADT of 30,200 and operates at LOS E.

Harbor Bay Parkway is a major arterial that connects the Harbor Bay Business Park to Doolittle Drive. Harbor Bay Parkway carries an ADT of 30,000 and operates at LOS A.

Island Drive is an arterial that connects the residential neighborhoods of Bay Farm Island to Doolittle Drive. Island Drive would not connect directly to the Major New Site but does connect to Harbor Bay Parkway via Maitland Drive. Island Drive carries an ADT of 31,300 and operates at LOS C.

High Street Bridge is one of five bridges or tunnels along the I-880 corridor that provide access to the City of Alameda. It carries an ADT of 25,700 and operates at LOS E/F (at capacity).

The Miller-Sweeney Bridge (Fruitvale Avenue Bridge) is one of five bridges or tunnels along the I-880 corridor that provide access to the City of Alameda. It is a drawbridge that serves as a reliever route to High Street Bridge between Oakland and Alameda. The Miller-Sweeney Bridge carries an ADT of 19,000 and operates at LOS E/F (at capacity).

Bay Farm Island Bridge, a four-lane drawbridge, connects Otis Drive and High Street to Doolittle Drive over the San Leandro Channel. It carries an ADT of 41,400 and operates at LOS D.

Fernside Boulevard and High Street are collectors serving a residential area of Alameda, between the Bay Farm Island and High Street bridges. Fernside Boulevard carries an ADT of 11,300 and operates at LOS C. High Street runs parallel to and is located one block north of Fernside Boulevard, and is controlled by traffic signals. High Street carries an ADT of 11,400 and operates at LOS C. Although both Fernside Boulevard and High Street are two-way streets, they operate similarly to a one-way couplet. Because of traffic controls, Fernside Boulevard is the preferred eastbound route and High Street is the preferred westbound route.

Cross-Airport Roadway, approved in the 1986 Measure B program, will be under construction by 1997. Full completion of the roadway is assumed by 2010, and it will serve as a reliever route to the Doolittle Drive corridor. Cross-Airport Roadway will be an arterial linking Harbor Bay Parkway (at Maitland Drive) to Airport Drive through the Metropolitan Oakland International Airport.

Hegenberger Road is a major arterial between the Metropolitan Oakland International Airport and I-880. East of I-880, Hegenberger Road continues to the Oakland Coliseum and East 14th Street. Hegenberger Road carries an ADT of 40,400 and operates at LOS C.

Airport Drive is a major arterial providing the connection from Hegenberger Road and 98th Avenue to the Oakland International Airport. Airport Drive currently carries an ADT of 35,800 and operates at LOS D.

98th Avenue is an arterial between I-880 and Doolittle Drive; it ends just east of Doolittle Drive. Airport Drive connects 98th Avenue to Doolittle Drive and the airport. 98th Avenue continues easterly in Oakland to an interchange with I-580. It carries an ADT of 18,800 and operates at LOS C.

Davis Street is an arterial that provides access from central San Leandro to I-880 and Doolittle Drive. Davis Street carries an ADT of 27,600 and operates at LOS D.

Public Transit

AC Transit provides bus service in Alameda. Two lines provide direct access to Harbor Bay Business Park from Oakland and Alameda via Harbor Bay Parkway. Two other lines serve residential areas to the north, but not within convenient walking distance of the Major New Site.

Line 49 provides service from the Coliseum BART Station to Harbor Bay Business Park, the Bay Farm Island Ferry Terminal and the Fruitvale BART Station. It operates at 15-minute headways in the weekday am and pm peak periods. In addition to Line 49, there is also a privately operated peak-period shuttle service between Harbor Bay Business Park and the Coliseum BART Station. Line 63 provides service from Harbor Bay Business Park and the Bay Farm Island Ferry Terminal to the Island of Alameda.

The Harbor Bay Ferry provides service between Bay Farm Island from a terminal at the end of Harbor Bay Parkway and downtown San Francisco at the Ferry Building.

Parking

On-street parking on Bay Farm Island is generally limited to residential areas. Parking is prohibited along Harbor Bay Parkway and on the streets within Harbor Bay Business Park, such as North Loop Road. Business Park tenants provide adequate on-site parking for existing parking demands. There is parking at the end of Harbor Bay Parkway for visitors to Shoreline Park.

Pedestrian And Bicycle Circulation

Harbor Bay Business Park is accessible by bicycle from Oakland and Alameda. The facilities that provide bicycle access consist of both shared and grade-separated right-of-ways between

bicycles and motor vehicles. From the island of Alameda, bicyclists must walk bicycles across the Bay Farm Island Bridge on the pedestrian sidewalk; a separate bicycle crossing is under construction. Bicyclists can then use Island Drive or Harbor Bay Parkway to reach the site. From Oakland, bicyclists can reach the site either through the City of Alameda or by way of Doolittle Drive.

Sidewalks are provided along the length of Harbor Bay Parkway and on North Loop Road in Harbor Bay Business Park.

Site-Specific Standards and Methods

Development of the Major New Site at Harbor Bay would be consistent with the *City of Alameda General Plan*, which contemplates research and related uses at the site.⁹ The *General Plan* assumes buildout of Harbor Bay by the year 2010, thus, transportation effects resulting from the Major New Site would be part of those anticipated at Harbor Bay. For purposes of comparison in this EIR, the analysis also includes year 2010 conditions without development of the Major New Site at Harbor Bay.

Traffic projections in the *Cross-Airport Roadway EIR*, which uses a refined version of the Alameda County Congestion Management Agency (CMA) traffic model, were used to prepare year 2010 regional traffic forecasts.¹⁰ Of available documentation, the *Cross-Airport Roadway EIR* contained the most detailed and current projections. The CMA year 2010 model assumes buildout of about one-third of the research and development uses at Harbor Bay Business Park. The remaining two-thirds of those uses included in the *Alameda General Plan* are assumed to occur at some time beyond year 2010.

To model conditions at the Harbor Bay Business Park with full buildout of the Major New Site in year 2010, traffic projections in the *Cross-Airport Roadway EIR* were increased to reflect full buildout of the research and development uses at Harbor Bay by year 2010. In that EIR, about 1,000,000 square feet of space is assumed to remain undeveloped at Harbor Bay Business Park in year 2010. The future traffic volumes projected for Harbor Bay in this EIR are, therefore, slightly higher than those projected in the *Cross-Airport Roadway EIR* and therefore provide a conservative analysis.

The *City of Alameda General Plan* does not favor expanding traffic capacity on existing streets as a means of improving traffic conditions. Rather, it proposes limiting street capacity on the Island of Alameda, building new routes between I-880 and Bay Farm Island to limit through traffic on the Island of Alameda, and providing alternatives to single-occupant automobiles. For example, Fernside Boulevard was narrowed from four travel lanes to two travel lanes to preserve a residential environment in its neighborhood. Also, the City of Alameda supports a new San Leandro Bay crossing to connect Harbor Bay Parkway and 66th Avenue in Oakland, although plans or funding for that project are considered speculative. The crossing project and Transportation Systems Management (TSM) programs, such as incentives for transit use and a local ordinance adopted in 1990 which requires employers to reduce employee drive-alone trips by 30 percent in five years, are identified by the *Alameda General Plan* as necessary improvements if Harbor Bay Business Park is to be fully developed without causing severe

traffic congestion. Section 4029 of the California Health & Safety Code, adopted in 1995, limits the implementation of mandatory employer-based trip reduction ordinances, so the local trip reduction ordinance can no longer be enforced.

Cumulative Baseline Analysis (Year 2010)

Approach to Analysis

As stated above, the transportation analysis of the Major New Site at Harbor Bay uses the Alameda County Congestion Management Agency (CMA) year 2010 traffic model as refined in the *Cross-Airport Roadway EIR*. The CMA model assumes development of about one-third of Harbor Bay Business Park by 2010, and this EIR analysis adds the Major New Site at Harbor Bay uses to the CMA projections. That scenario would be the equivalent of full buildout of Harbor Bay Business Park research and development uses by 2010. Future year 2010 conditions without the Major New Site were also analyzed.

Project-Generated Traffic

Trip Generation

The Major New Site at Harbor Bay would generate approximately 18,400 external weekday person-trips (see Table 12-1 in the Development Scenario subsection). Table 12-4 shows the breakdown of person-trips by travel mode. The Major New Site at Harbor Bay would generate about 14,600 daily vehicle trips, about 2,340 vehicle trips during the am peak hour (16 percent of daily generation), and about 2,190 vehicle trips in the pm peak hour (15 percent of daily generation).¹¹ Mode split rates shown in Table 12-4 were derived based on existing mode splits at Harbor Bay, adjusted for carpool/vanpool percentages at other UCSF sites. UCSF provides extensive carpool/vanpool opportunities; therefore, the analysis assumes a higher mode share for carpools and vanpools for a Major New Site than the mode split for existing development at Harbor Bay.¹²

Trip Distribution

As noted above, traffic from the Major New Site at Harbor Bay was distributed on the area roadway network on the basis of the Alameda County CMA year 2010 traffic model and the *Cross-Airport Roadway EIR* projections. The *Cross-Airport Roadway EIR* shows year 2010 traffic volumes with traffic patterns and locations of congestion. Major New Site traffic was assigned to area roadways using those year 2010 traffic patterns, route distance, capacity availability and delay conditions. Figure 12-9 shows the directional distribution of Major New Site traffic with respect to the Harbor Bay site.

The CMA model assumes the completion of the approved and funded Cross-Airport Roadway Project, a four-lane arterial linking Harbor Bay Parkway to Airport Drive that would run parallel to Doolittle Drive (see Figure 12-9). The new road would be projected to carry a substantial

**Table 12-4 HARBOR BAY
MODE SPLIT CALCULATIONS**

Land Use	Projected Mode Splits																Daily Vehicle Trips
	Drive Alone		Drop-Off		Carpool		Vanpool		BART & Bus		Ferry		Bike/Motorcycle		Walk		
	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	
Faculty ¹	76%	554	1%	9	11%	81	4%	29	5%	37	1%	7	2%	15	0%	1	619
Professional Researchers ¹	67%	7,316	1%	132	15%	1,648	9%	989	5%	549	1%	110	2%	220	0%	22	8,558
Employees ¹	67%	3,010	1%	54	15%	678	9%	407	5%	226	1%	45	2%	90	0%	9	3,520
Visitors ¹	76%	1,164	1%	18	11%	169	4%	62	5%	77	1%	15	2%	31	0%	3	1,299
Vendors/Service ²	100%	600	0%		0%		0%	0	0%	0	0%	0	0%		0%	0	600
	12,644		213		2,576		1,487		889		177		356		35		14,596

Notes:

1. Mode splits for faculty, professional researchers and employees are taken from K.T. Analytics, *Harbor Bay Business Park Association TSM Plan* (January 1992) with the exception of the carpool/vanpool modes. For carpool and vanpool, mode splits have been taken from Wilbur Smith Associates *UCSF LRDP Journey to Campus Data Analysis* (September, 1991).
2. As a conservative assumption, it is assumed that all vendor/service trips would be drive-alone vehicle trips.
3. Vehicle trips are calculated based on the following formula: (Drive Alone Trips) + (Drop-Off Trips x 2) + (Carpool trips / 2) + (Vanpool trips / 10) + (Motorcycle/Bike trips/4).

Source: Fehr & Peers, 1996.

portion of traffic to Harbor Bay Business Park and Metropolitan Oakland International Airport. A portion of existing traffic on Doolittle Drive would be expected to divert to the Cross-Airport Roadway because of the new roadway's higher capacity and shorter route to the airport from I-880 and to Harbor Bay.

b. Impacts and Mitigation Measures

Vehicle Traffic

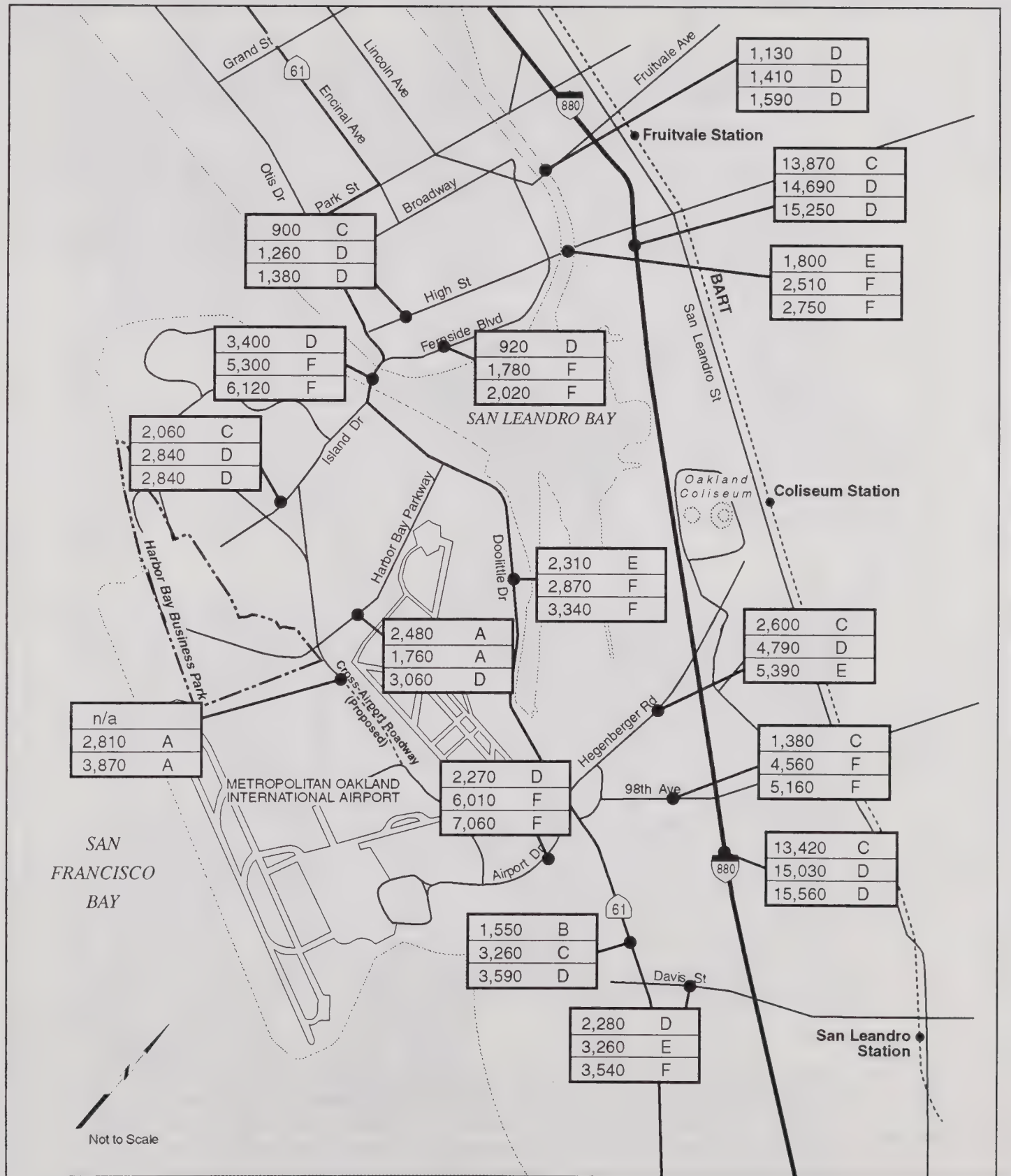
Year 2010 daily and peak-hour volumes, capacities and LOS on the study corridors in Harbor Bay with and without the Major New Site are presented in Table A-3-13 and A-3-15 in Appendix 3. Figures 12-10 and 12-11 compare existing and year 2010 traffic volumes with and without the Major New Site for each corridor. Year 2010 conditions, without development of the Major New Site, would worsen existing LOS to E or F on many corridors including: High Street Bridge, LOS E or E/F to LOS F (am and pm); Fernside, LOS D to LOS F (am and pm); Doolittle Drive south of the Harbor Bay Parkway, LOS E to LOS F (am); 98th Avenue, LOS C to LOS F (am and pm); Davis Street, LOS D to LOS E (am and pm); Airport Drive, LOS D to LOS F (am and pm). As discussed below, traffic generated by the Major New Site at Harbor Bay would cause corridor LOS deterioration or worsened LOS E/F conditions on I-880, the Miller-Sweeney Bridge, High Street Bridge, Fernside Boulevard, Bay Farm Island Bridge, Harbor Bay Parkway, Doolittle Drive, Hegenberger Road, Airport Road, 98th Avenue and Davis Street.

The impacts and mitigation measures discussed below reflect City of Alameda *General Plan* policies to avoid street capacity expansion as mitigation for traffic conditions resulting from the buildout of Harbor Bay.

Impact 12C3-1. I-880 LOS (Project/Significant). Traffic generated by the Major New Site would cause the peak-hour LOS to deteriorate from LOS D to LOS E on I-880 north of Davis Street. This change in the LOS would be significant.

Interstate 880 north of Davis Street currently operates at LOS C during both the am and pm peak hours. The LOS would deteriorate to D under year 2010 conditions without the Major New Site. The Major New Site would add 530 vehicle trips to I-880 north of Davis Street during the am peak hour and 500 vehicle trips during the pm peak hour. The vehicle trips added to this segment of I-880 by the Major New Site would cause a deterioration of the LOS from LOS D to LOS E in the pm peak hour. This would be a significant impact.

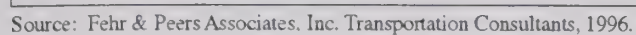
Mitigation Measure 12C3-1. (Significant/Unavoidable). Transportation Demand Management (TDM) programs would reduce the number of vehicle trips generated by the Major New Site. However, it would not be expected that TDM measures would reduce the effects below the threshold of significance.



LEGEND

Existing Traffic	LOS
2010 w/o Project	LOS
2010 w/ Project	LOS

Levels of Service



Impact 12C3-2. Miller-Sweeney Bridge, High Street Bridge, Fernside Boulevard, and Bay Farm Island Bridge V/C Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site would cause a significant deterioration in the v/c ratios on the following corridors: Miller-Sweeney Bridge, High Street Bridge, Fernside Boulevard east of Central Avenue, and Bay Farm Island Bridge (these corridors are discussed as a group because they are all within the City of Alameda and all relate to Mitigation Measure 12C3-2). Each of these corridors would operate at LOS F without the Major New Site and each would experience a v/c ratio deterioration greater than 0.01 with the Major New Site. This would be a significant project impact.

The Miller-Sweeney Bridge currently operates at LOS D during the am peak hour and at capacity (LOS E/F) during the pm peak hour. Under year 2010 conditions without the Major New Site, LOS conditions would be similar to current conditions with LOS D in the am peak hour and LOS F in the pm peak hour. The Major New Site would add 180 vehicle trips to the bridge during the am peak hour and 120 vehicle trips during the pm peak hour. The Miller-Sweeney Bridge would remain at LOS D in the am peak hour with the addition of trips from the Major New Site. The v/c ratio for the pm peak hour (LOS F) would deteriorate by 0.06. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because the Miller-Sweeney Bridge in the pm peak hour is or would be already at LOS E or LOS F.

The High Street Bridge currently operates at LOS E during the am peak hour and LOS E/F during the pm peak hour. Under year 2010 conditions without the Major New Site, the High Street Bridge would operate at LOS F in both the am and pm peak hours. The Major New Site would add 240 vehicle trips to the High Street Bridge during the am peak hour and 220 vehicle trips during the pm peak hour. This would cause a 0.12 deterioration of the v/c ratio in the am peak hour and a 0.09 deterioration in the pm peak hour. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because the High Street Bridge is or would be already at LOS E or LOS F.

Fernside Boulevard east of Central Avenue currently operates at LOS D during both the am and pm peak hours. Under year 2010 conditions without the Major New Site, Fernside Boulevard east of Central Avenue would operate at LOS F in both the am and pm peak hours. The Major New Site would add 240 vehicle trips to this segment of Fernside Boulevard during the am peak hour and 250 vehicle trips during the pm peak hour. This would cause a 0.18 deterioration of the v/c ratio in the am peak hour and a 0.05 deterioration in the pm peak hour. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because Fernside Boulevard east of Central Avenue is or would be already at LOS E or LOS F.

The Bay Farm Island Bridge currently operates at LOS D during both the am and pm peak hours. Under year 2010 conditions without the Major New Site, Bay Farm Island Bridge would operate at LOS F in both the am and pm peak hours. The Major New Site would add 820 vehicle trips to Bay Farm Island Bridge during the am peak hour and 690 vehicle trips during the pm peak hour. This would cause a 0.21 deterioration of the v/c ratio in the am peak hour and a 0.16 deterioration in the pm peak hour. This deterioration of a v/c ratio by 0.01 or more

would be considered a significant impact of the Major New Site because Bay Farm Island Bridge is or would be already at LOS E or LOS F.

Mitigation Measure 12C3-2. (Significant/Unavoidable). If a San Leandro Bay Crossing were built by 2010, Harbor Bay Parkway and 66th Avenue would be expected to operate at a satisfactory level of service. With the expected growth at Harbor Bay Business Park, the City of Alameda, as stated in the *General Plan*, would support the construction of a San Leandro Bay crossing pending further study. It would be speculative to assume that this mitigation could be implemented by the year 2010. Without the new crossing, the impact would continue to be significant. *Implementation of this measure would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C3-3. Davis Street V/C Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site would cause the LOS E conditions in year 2010 on Davis Street west of I-880 to deteriorate by a v/c ratio of 0.09 in the am peak hour and 0.08 in the pm peak hour. Davis Street west of I-880 would already be operating at LOS E under year 2010 conditions in both the am and pm peak hours without the Major New Site. This deterioration of the v/c ratios would be a significant project impact.

Davis Street west of I-880 currently operates at LOS D during both the am and pm peak hours. Under 2010 conditions without the Major New Site, Davis Street west of I-880 would operate at LOS E in both the am and pm peak hours. The Major New Site would add 280 vehicle trips to this portion of Davis Street during the am peak hour and 270 vehicle trips during the pm peak hour. This would cause a 0.09 deterioration of the v/c ratio in the am peak hour and a 0.08 deterioration in the pm peak hour. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because Davis Street west of I-880 is or would be at LOS E or LOS F in year 2010.

Mitigation Measure 12C3-3. (Significant/Unavoidable). This segment of Davis Street is within the City of Oakland and includes a freeway overpass. Improving the LOS on this corridor to acceptable levels would require widening the overpass. It would be speculative to assume this improvement could be implemented by the year 2010. Transportation Demand Management (TDM) programs could reduce the number of vehicle trips generated by the Major New Site but would not reduce the effects below levels of significance. *Implementation of this measure would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C3-4. Doolittle Drive South V/C Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site would result in the deterioration of LOS E/F conditions on Doolittle Drive south of Harbor Bay Parkway by a v/c ratio of 0.18 during the am peak hour and 0.15 during the pm peak hour. Doolittle Drive south of Harbor Bay Parkway would already operate at LOS E/F under year 2010 conditions without the Major New Site. This deterioration of the v/c ratio would be a significant project impact.

Doolittle Drive (City of Oakland) south of Harbor Bay Parkway currently operates at LOS E during both the am and pm peak hours. Under 2010 conditions without the Major New Site, Doolittle Drive south of Harbor Bay Parkway would operate at LOS F in the am peak hour and LOS E in the pm peak hour. The Major New Site would add 470 vehicle trips to this segment of Doolittle Drive during the am peak hour and 440 vehicle trips during the pm peak hour. This would cause a 0.18 deterioration of the v/c ratio in the am peak hour and a 0.15 deterioration in the pm peak hour. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because Doolittle Drive south of Harbor Parkway is or would be already at LOS E or LOS F.

Mitigation Measure 12C3-4. (Less Than Significant). Doolittle Drive (in the City of Oakland) south of Harbor Bay Parkway currently operates with two lanes, no center divider, limited side-street access, and speeds up to freeway standards. Widening from two to four lanes would improve the LOS to acceptable levels. Widening this segment of Doolittle Drive would require consideration of environmental constraints related to the proximity of Airport Channel (part of San Francisco Bay) and airport property. *Implementation of this measure would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C3-5. Hegenberger Road Level of Service Change (Project/Significant). Traffic generated by the Major New Site would cause the am peak hour LOS to deteriorate from LOS D to LOS E on Hegenberger Road west of I-880. This change in the LOS would be a significant project impact.

Hegenberger Road west of I-880 currently operates at LOS C during both the am and pm peak hours. The LOS would deteriorate to D in the am peak hour under year 2010 conditions without the Major New Site, but LOS C would be maintained in the pm peak hour. The Major New Site would add 600 vehicle trips to Hegenberger Road west of I-880 during both the am and pm peak hours. The new vehicle trips added to this segment of Hegenberger Road by the Major New Site would cause a deterioration from LOS D to LOS E in the am peak hour. This deterioration to below acceptable LOS D conditions would be a significant impact.

Mitigation Measure 12C3-5. (Less Than Significant). The peak direction of traffic in the am peak hour on Hegenberger Road is westbound (67 percent of two-way volume is westbound). There are currently three westbound travel lanes with striped turn lanes at every intersection, with sufficient width from centerline to curb for the addition of one westbound travel lane. The lane addition would improve the LOS to an acceptable level. *Implementation of this measure would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C3-6. 98th Avenue V/C Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site would result in the deterioration of LOS F conditions on 98th Avenue west of I-880 by a v/c ratio of 0.17 during both the am and pm peak

hours. 98th Avenue west of I-880 would already operate at LOS F under year 2010 conditions without the Major New Site. This deterioration of the v/c ratio would be a significant project impact.

98th Avenue west of I-880 currently operates at LOS C during both the am and pm peak hours. Under year 2010 conditions without the Major New site, 98th Avenue west of I-880 would operate at LOS F in both the am and pm peak hours. The Major New Site would add 600 vehicle trips to 98th Avenue west of I-880 during the am peak hour and 390 vehicle trips during the pm peak hour. This would cause a 0.17 deterioration of the v/c ratio in both the am and pm peak hours. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because 98th Avenue west of I-880 is or would be already at LOS E or LOS F.

Mitigation Measure 12C3-6. (Less Than Significant). As part of the Cross-Airport Roadway Project, the dead-end segment of 98th Avenue (in the City of Oakland) west of Airport Drive would be widened. Adding one lane per direction between Airport Drive and I-880 would result in acceptable levels of service on 98th Avenue. Existing curb-to-curb width east of Airport Drive may not be sufficient; additional paved width (from existing sidewalk landscaping) may be required. *Implementation of these measures would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C3-7. Airport Drive V/C Deteriorations (Project/Significant). Traffic generated by the Major New Site would result in the deterioration of LOS F conditions on Airport Drive west of Earhart Road by a v/c ratio of 0.19 during the am peak hour and 0.28 during the pm peak hour. Airport Drive west of Earhart Road would already operate at LOS F under year 2010 conditions without the Major New Site. This deterioration of the v/c ratio would be a significant project impact.

Airport Drive west of Earhart Drive currently operates at LOS D during both the am and pm peak hours. Under year 2010 conditions without the Major New Site, Airport Drive west of Earhart Road would operate at LOS F in both the am and pm peak hours. The Major New Site would add 1,050 vehicle trips to Airport Drive west of Earhart Road during the am peak hour and 1,070 vehicle trips during the pm peak hour. This would cause a 0.19 deterioration of the v/c ratio in the am peak hour and a 0.28 deterioration of the v/c ratio in the pm peak hour. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because Airport Drive West of Earhart Road is or would be already at LOS E or LOS F.

Mitigation Measure 12C3-7. (Less Than Significant). Airport Road is within the City of Oakland. The provision of one additional lane in each direction on Airport Road would be necessary to mitigate impacts associated with the Major New Site at Harbor Bay. With this mitigation, Airport Drive would continue to operate at LOS F, but increased capacity would improve the v/c ratio to 1.52, and would avoid the v/c change resulting from traffic from the Major New Site. It is

estimated that Airport Drive would require eight lanes to operate at LOS D with 2010 conditions. *Implementation of this measure would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C3-8. Increase in Transit Ridership (Project/Significant). The Major New Site would add ridership to AC Transit lines that serve Harbor Bay Business Park, by about 890 trips per day, and 140 pm peak-hour trips and would add 180 daily and 30 peak hour ferry passengers. Peak-hour service on Line 49, between Harbor Bay and BART, may not be adequate to meet this demand.

The Major New Site would generate up to 890 transit trips per day and up to 140 transit trips during peak hours (see Table 12-5). These would include BART and AC Transit users. Some of the BART users would also use AC Transit Line 49 to and from the Coliseum or the Fruitvale Stations. AC Transit plans to initiate mid-day 15-minute service for Line 49, which already provides 15-minute service during peak periods. Peak-period and mid-day 15-minute service is also planned for Line 63.¹³ Those planned improvements would not be sufficient for Major New Site demand during peak periods. As most of the increased demand would be BART users at either the Coliseum or the Fruitvale Station, Line 49 would be the most affected transit route. An average of 35 passengers per hour would be added to Line 49 buses during peak hours and it is uncertain as to whether this additional demand could be accommodated.

Development of the Major New Site would increase ferry ridership by up to 180 passengers per day, and up to 30 passengers during peak hours. This would not significantly affect existing ferry service in Harbor Bay.

Mitigation Measure 12C3-8. (Less Than Significant). Capacity on AC Transit Line 49 could be improved by increasing the frequency of service or using larger *Implementation of these measures would be within the jurisdiction or responsibility of agencies other than UCSF.*

Impact 12C3-9. Increase in Parking Demand (Project/Less Than Significant). The Major New Site at Harbor Bay would have a peak demand for about 5,500 parking spaces. The LRDP proposes to provide adequate parking at a Major New Site to meet demand. Therefore, this would not be a significant effect.

The LRDP calls for development of sufficient on-site parking to meet projected demand of a Major New Site. On the basis of the trip-generation analysis, the Major New Site at Harbor Bay would have an estimated peak demand of about 5,760 parking spaces during a typical weekday peak hour, as shown in Table 12-5. The estimated demand of 5,760 spaces is less than the 7,950 spaces estimated in the LRDP. The 7,950 estimate was based on a ratio of three parking spaces per 1,000 gross square feet of building area. Actual parking supply would be based on site characteristics (i.e., proximity to availability of transit and other transportation) and, in the case of Harbor Bay, a minimum parking supply of 5,800 would be provided. Therefore, there would be no off-site parking impact.

**TABLE 12-5 HARBOR BAY
AVERAGE WEEKDAY PARKING DEMAND ESTIMATES**

Population Categories	Average Weekday Vehicle Trips¹	Peak Hour Parking Demand Estimates²
Faculty	618	260
Professional Researchers	8,558	3,594
Staff	3,520	1,478
Visitors	1,300	246
Vendors/Service	600	180
Total	14,596	5,758

Notes:

1. Refer to Table 12C-4.
2. Parking demand estimates assume that 84 percent of faculty/professional researchers/staff, 37 percent of visitors, and 60 percent of vendors are on-site during the peak parking demand period. This is consistent with existing data from Wilbur Smith Associates, *UCSF LRDP Parnassus Parking Demand Estimates Discussion Paper*, May 16, 1994.

Source: Fehr & Peers Associates, 1996.

Mitigation Measure 12C3-9. (Less Than Significant). None required.

Impact 12C3-10. Increase in Pedestrian/Bicycle Trips (Project/Less Than Significant).

The Major New Site at Harbor Bay would generate up to 36 pedestrian/bicycle trips per day. This increase in pedestrians and bicycles at Harbor Bay could increase possible pedestrian/bicycle/vehicle conflicts. However, the Harbor Bay area is well-served by pedestrian and bicycle facilities. This impact is considered less than significant.

The Major New Site would generate up to 36 pedestrian/bicycle trips per day. This would not be a significant impact as pedestrian sidewalks are provided throughout Harbor Bay Business Park. Also, a bicycle crossing adjacent to the Bay Farm Island Bridge is currently under construction.

Mitigation Measure 12C3-10. (Less Than Significant). None required.

4. MISSION BAY

a. Site-Specific Setting

Background

The description of existing traffic conditions at Mission Bay has been compiled using data collected for studies of Mission Bay, other relevant studies, and new data collected in 1995 by Fehr & Peers Associates. The reference documents include the *Mission Bay FEIR*, the *Mission Bay Plan* and the *Central Waterfront Plan*.¹⁴ The latter two plans are elements of the *San Francisco Master Plan*.¹⁵

Vehicular Access

Mission Bay is easily accessible from Bay Area freeways. I-280 terminates at the intersection of Brannan and Sixth Streets. I-280 ramps are also located at Mariposa and 18th Streets near the southern border of the site. I-280 provides access through the central and southern neighborhoods of San Francisco, the central portions of San Mateo County, and Santa Clara County. The nearby Fifth and Fourth Street I-80 on- and off-ramps provide direct access to the East Bay via the Bay Bridge, and to San Mateo and Santa Clara Counties via US 101. Southbound access to US 101 is also provided via westbound I-80 with ramps at Fourth, Ninth and Tenth Streets. A northbound US 101 off-ramp at Vermont and Mariposa Streets also provides access to Mission Bay. The most direct auto access to the North Bay, via the Golden Gate Bridge, is provided by Third Street, The Embarcadero, Bay Street, Marina Boulevard and Doyle Drive.

In the traffic analysis conducted for existing conditions and in the discussion that follows, existing freeway volumes were taken from Caltrans' most recent edition of *Traffic Volumes on California State Highways* except where noted otherwise.¹⁶ Existing local street traffic

volumes were taken from recent counts conducted by the San Francisco Department of Parking and Traffic (DPT) or from counts conducted by Fehr & Peers Associates in 1995.

The existing daily and peak-hour volumes, capacities and levels of service on the study corridors in Mission Bay are presented in Table A-3-16 in Appendix 3.

The Bay Bridge (Interstate 80) is the main vehicular connection between San Francisco and the East Bay. In 1993, the Bay Bridge carried an Average Daily Traffic (ADT) of 253,000 vehicles, operating at Level of Service (LOS) E/F.

Interstate-280 is a major north-south freeway that connects San Francisco to the South Bay and a network of freeways including I-680, I-80, US 101 and State Route 17. I-280, along with US 101, serve as the major routes in the Bay Area peninsula. At the time the technical analysis was performed in this EIR, damage from the 1989 Loma Prieta Earthquake limited I-280's use north of its junction with US 101 to one lane per direction to accommodate reconstruction. Therefore, the ADT used for I-280 in this analysis reflects pre-earthquake conditions, from Caltrans' *1988 Traffic Volumes on California State Highways*.¹⁷ South of Mariposa Street, I-280 carries an ADT of 87,000 and operates at LOS C. Reconstruction of I-280 was completed after this EIR analysis was performed. The reconstructed section was re-opened to traffic in November 1995, with three to four lanes per direction.

Near Mission Bay, US 101 is a major north-south freeway connection between San Francisco, San Mateo and Santa Clara counties and is the major access route to San Francisco International Airport about ten miles south of San Francisco. Post-earthquake reconstruction limited the capacity of I-280 north of its junction with the US 101 connector, and made US 101 the major freeway route in the vicinity of the site from 1989 to 1995. Existing traffic conditions described for US 101 (1993) reflect volumes prior to the re-opening of the US 101/I-280 connector, and represent different conditions on US 101, I-280 and streets that carried traffic diverted from I-280, such as Third Street than exist in 1996. In 1993, US 101 carried an ADT of 273,000 south of Mariposa Street and 285,000 south of Cesar Chavez (formerly Army) Street, and operated at LOS E/F conditions.

Third Street is the major north-south arterial bisecting the Mission Bay site. Towards the south, this arterial provides access, parallel to I-280, through the San Francisco neighborhoods of Potrero Hill, Bayshore and Hunters Point. Approximately four miles south of Mission Bay, Third Street interchanges with US 101 and connects with Bayshore Boulevard which serves the Visitacion Valley neighborhood of San Francisco, as well as Daly City, Brisbane and South San Francisco. With its north-south orientation, Third Street serves as a bypass route to US 101 and I-280 during commute peak periods. At Market Street, Third Street traffic continues northbound on Kearny Street into the Financial District.

Volumes recorded by the San Francisco Department of Parking and Traffic (DPT) in January 1994 show that Third Street carries approximately 24,000 vehicles on an average weekday near Cesar Chavez Street, about two miles south of Mission Bay, and operates at LOS C. Immediately north of the site, the ADT is 22,600 according to February 1995 counts, and the LOS is D.¹⁸ Those counts reflect traffic conditions on Third Street before the I-280/US 101 connector re-opened fully in late 1995. With the re-opening of the I-280/US 101 connector,

volumes on Third Street should decrease as traffic using Third Street shifts to I-280. Further north, at its one-way segment near Market Street, February 1995 counts show an ADT of 23,300 and LOS C operations. The future lane configuration of Third Street near Mission Bay will change if MUNI Metro light-rail vehicle service is extended in the future, with a resulting reduction in the number of travel lanes. While this would reduce future capacity on Third Street, the EIR does not assume a change in lanes on Third Street in 2010. This would not change conclusions about future conditions on that corridor, because Third Street operated at satisfactory levels in 1995 with much higher traffic volumes than projected for 2010.

The *San Francisco Master Plan* classifies Third Street as a "Transit Preferential Street," which means that it is an important street for transit operations where interference with transit vehicles by other traffic should be minimized. The "Vehicle Circulation Plan" classifies Third Street as a "Major Thoroughfare." Finally, Third Street is classified in the Master Plan as a Class III bicycle route and a "Preferred Commute Bike Route," which indicates that many bicyclists use this travel route.

Fourth Street is a two-way arterial in the vicinity of Mission Bay. South of Market Street (Market to King Street), it is one-way southbound and forms a north-south couplet with northbound Third Street. Fourth Street provides access to Mission Bay from the Financial District, the Moscone Convention Center, I-80 ramps and the CalTrain terminal at Townsend Street. According to February 1995 counts by Fehr & Peers Associates, Fourth Street has an ADT of 19,400 immediately south of the Fourth Street Bridge at Mission Creek and operates at LOS E/F conditions. North of Townsend Street (near Market Street), Fourth Street carries an ADT of 28,200 and operates at LOS C. The *San Francisco Master Plan* classifies Fourth Street as a "Transit Preferential Street." The "Vehicle Circulation Plan" classifies Fourth Street as a "Major Thoroughfare." Fourth Street is also a Class III bicycle route.

Seventh Street provides access to the north from Mission Bay at 16th Street. It terminates at Market Street and connects to McAllister Street and Leavenworth Street in the Civic Center area. The segment between Brannan Street and Townsend Street has the highest traffic volume within the fewest number of travel lanes and, therefore, represents the most constrained segment of the corridor. DPT counts taken in April 1994 show that Seventh Street south of Bryant Street has an ADT of 24,000 vehicles and operates at LOS E.

Near Mission Bay, Bryant and Harrison Streets run parallel to I-80. Bryant Street provides connections to I-80 eastbound on- and off-ramps at Seventh, Fifth and Fourth Streets and east of Second Street. Harrison Street provides connections to I-80 westbound ramps at First, Essex, Fourth, Fifth, Seventh and Eighth Streets.

Bryant Street carries an ADT of 15,900 west of Second Street and 16,800 west of Fifth Street in February 1995 counts. It operates at LOS C. Harrison Street west of Second Street has an ADT of 21,400, in February 1995 counts, and operates at LOS D.

Cesar Chavez Street (formerly Army Street) is a major east-west arterial that connects the Central Waterfront, near Third Street, to Potrero Hill, the Mission District and Noe Valley/Diamond Heights. There are north and south ramps at I-280 and US 101. Cesar

Chavez Street carries an ADT of 30,000 west of Evans Avenue and 41,700 west of Folsom Street. It operates at LOS E.

Mariposa Street, an east-west arterial two blocks south of 16th Street, connects Mission Bay to I-280 southbound on- and off-ramps and northbound off-ramps. Further west, at Vermont Street, Mariposa Street serves an off-ramp from northbound US 101. Mariposa Street contains steep grades through Potrero Hill. West of I-280, it carries an ADT of 8,400, operating at LOS D.

16th Street is a major east-west arterial connecting Mission Bay to the Showplace Square, Potrero Hill, Inner Mission and Upper Market areas as well as the UCSF sites at San Francisco General Hospital (SFGH) and Mission Center. This roadway, varying between two and four lanes in width, provides connection to areas west of US 101. Near the site, 16th Street is two lanes wide, carries an ADT of 8,300 and operates at LOS C.

Public Transit

Existing public transit service to Mission Bay is provided by MUNI. The CalTrain Terminal at Fourth and Townsend Streets is served by MUNI lines in addition to providing commuter rail service to San Mateo and Santa Clara counties. From downtown San Francisco, connections with other transit operators include BART (to Daly City, Alameda and Contra Costa counties), SamTrans (to San Mateo County), AC Transit (to Alameda and Contra Costa counties), Golden Gate Transit (to Marin and Sonoma counties) and commuter ferry services. The following is a description of current transit service to Mission Bay:

The 15-Third MUNI Bus Route on Third Street in Mission Bay serves Fisherman's Wharf, North Beach, the Financial District, the Montgomery Street MUNI Metro/BART Station, the Transbay Terminal, Mission Bay, Bayview, Hunters Point, the Balboa Park MUNI Metro/BART Station and other southern areas of San Francisco. At the CalTrain Station, the Transbay Terminal and other downtown San Francisco stops, the 15-Third provides connections to other regional transit carriers and MUNI lines serving most areas of San Francisco. The 22-Fillmore MUNI bus terminal is at 18th and Third Streets near Mission Bay and provides cross-town service west to Upper Market and north to the Marina District.

CalTrain serves communities among San Francisco, San Mateo and Santa Clara counties. The CalTrain terminal at Fourth and Townsend Streets is in the northerly portion of Mission Bay. Currently, 30-minute service is provided between San Francisco and San Jose or Gilroy during weekdays, with more frequent morning and afternoon peak service.

Nine MUNI bus lines serve the CalTrain terminal at Fourth and Townsend Streets. Weekday bus service is provided by: the 15-Third, 30-Stockton, 32-Embarcadero, 42-Downtown Loop and 45-Union-Stockton lines. Peak-period service to the CalTrain terminal also includes 38-Geary Limited, 80X-Gateway Express, 81X-CalTrain Express and 82X Levi Plaza Express.¹⁹

Parking

Currently, on-street parking in Mission Bay is adequate for the existing demand.

Site-Specific Standards and Methods

Cumulative Baseline Analysis (Year 2010)

MTC (Metropolitan Transportation Commission) Model and Analysis Description

The analysis of future cumulative conditions establishes a baseline for gauging the impacts of the Major New Site in year 2010. Travel demand forecasting for the Mission Bay site is based on the MTC year 2010 traffic model, which takes into account projected growth at local and regional levels. Factors that influence the MTC travel demand forecasting include demographics, land use, transportation facilities and mode choice. Demographic projections were made by ABAG and documented in *Projections 94*.²⁰ The MTC traffic model's forecast of cumulative conditions in Mission Bay is based on ABAG's demographic projections made at the census tract level.

For the Mission Bay analysis, year 2010 traffic was assessed for conditions with and without the Major New Site (see the Introduction for this section, above).

As described in the Introduction, the year 2010 traffic projections at Mission Bay for the Major New Site have been treated as an increment of development above what is projected in the MTC model. The traffic analysis for year 2010, therefore, is conservative because it reflects traffic projections based on MTC housing and employment projections in Mission Bay plus Major New Site traffic.

As discussed in Chapter 3, although Catellus Development Corporation has withdrawn from the Mission Bay Development Agreement with the City and County of San Francisco, this EIR uses cumulative assumptions and analyses based upon the adopted *Mission Bay Plan* and information contained in the *Mission Bay FEIR*. This is appropriate as the transportation analyses for a Major New Site at Mission Bay use MTC growth projections to model future traffic in the Mission Bay area in the year 2010, with and without development of a Major New Site. The MTC projections include only a portion of the growth assumed in the *Mission Bay FEIR*; thus, they may be more consistent with Catellus' potential alternative development at Mission Bay than the projections contained in the *Mission Bay FEIR*. Therefore, the transportation analysis represents reasonable future conditions for evaluation of the Major New Site at Mission Bay.

Modeling Process

For the Mission Bay cumulative analysis, MTC provided model runs, simulating year 2010 am peak hour conditions. The results were reviewed for reasonableness and adjusted, where necessary, to yield an accurate reflection of year 2010 baseline conditions. Year 2010 daily

and pm peak-hour volumes were derived from the model's am peak-hour volumes according to existing peaking characteristics.

In the Mission Bay area, the MTC model projects substantial decreases in traffic from existing traffic volumes to year 2010 volumes on the Third Street corridor south of I-280, with year 2010 volumes as much as 70 percent lower than existing (1994/1995) volumes. The decrease reflects a shift in traffic to I-280 after reconstruction of all segments of that freeway are completed. I-280 will provide higher speeds and capacity in year 2010 than will Third Street and, therefore, will attract existing traffic away from Third Street.

The MTC model assumes three to four lanes per direction for I-280 near Mission Bay in year 2010. At I-280's northern terminus, the model assumes new ramps on King Street near Fifth Street.

Cumulative Baseline Analysis

The MTC model projects substantial traffic growth in San Francisco by 2010. The Bay Bridge and US 101 are shown to be at capacity under existing conditions and neither would have major capacity improvements by the year 2010.

Year 2010 daily and peak-hour volumes, capacities and levels of service on the study corridors in Mission Bay with and without the Major New Site are presented in Tables A-3-17 and A-3-18 in Appendix 3. Figures 12-13 and 12-14 illustrate existing and year 2010 conditions with and without the Major New Site. Projected 2010 traffic growth without the Major New Site at Mission Bay would worsen the LOS at the following corridors in the vicinity: Third Street south of Folsom Street, LOS C to D (am and pm); Cesar Chavez Street west of Evans Avenue, LOS D to LOS E (pm); the Bay Bridge corridor, LOS E/F to LOS F (am and pm); US 101 near Mission Bay LOS E/F to LOS F (am and pm); and I-280, LOS C to LOS F (am and pm).

Project-Generated Traffic

Trip Generation

The Major New Site would generate approximately 18,400 external person-trips on a weekday (refer to Table 12-1). Table 12-6 provides a breakdown of person-trips by travel mode, with the Major New Site at Mission Bay generating 10,820 daily vehicle-trips. During the am peak hour, the Major New Site would generate 1,730 vehicle trips (16 percent of daily generation), and during the pm peak hour, it would generate about 1,620 vehicle trips (15 percent of daily generation). The peak hour percentages reflect rates from the Institute of Transportation Engineers' *Trip Generation*, for a "Research and Development Center."²¹ Mode split rates were derived from Wilbur Smith Associates *Journey to Campus Data Analysis*, which documents UCSF mode split data collected at its current sites.²² In addition, projected mode

**TABLE 12-6 MISSION BAY
MODE SPLIT CALCULATIONS
PROJECTED MODE SPLITS**

Population Categories	Drive Alone		Drop-Off		Carpool		Vanpool		MUNI		Other Transit		Bike/ Motorcycle		Walk		Daily Vehicle Trips ⁴
	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	
Faculty ¹	59%	432	5%	37	11%	81	4%	29	6%	44	7%	51	2%	15	6%	44	552
Professional Researchers ¹	36%	3,955	5%	549	15%	1,648	9%	989	21%	2,307	5%	549	2%	220	7%	769	6,031
Staff ¹	36%	1,621	5%	225	15%	676	9%	405	21%	946	5%	225	2%	90	7%	315	2,472
Visitors ²	59%	909	5%	77	11%	169	4%	62	6%	92	7%	108	2%	31	6%	92	1,161
Vendors/Service ³	100%	600	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	600
TOTAL		7,517		888		2,574		1,485		3,389		933		356		1,220	10,816

Notes:

1. Based on Wilbur Smith Associates, *UCSF LRDP Journey to Campus Data Analysis*, September 1991, Table 5.
2. No data are available on modal splits for visitors so faculty splits were applied as the drive-alone rates are higher than those for staff.
3. As a conservative assumption it is assumed that all vendors and service trips will be drive alone vehicle trips.
4. Vehicle trips are calculated based on the following formula: Drive Alone trips + (Drop-Off trips x 2) + (Carpool trips/2) + Vanpool trips/10 + (Motorcycle/Bike trips/4).

Source: Fehr & Peers Associates, 1995.

split characteristics specific to Mission Bay were also included. Those characteristics include a high level of transit availability and a related lower percentage of single passenger vehicle trips.

Trip Distribution

The distribution of Major New Site-generated traffic to the area roadway network is based on the MTC year 2010 model. Figure 12-12 shows the directional distribution of project traffic with respect to the Mission Bay site.

Trip Assignment

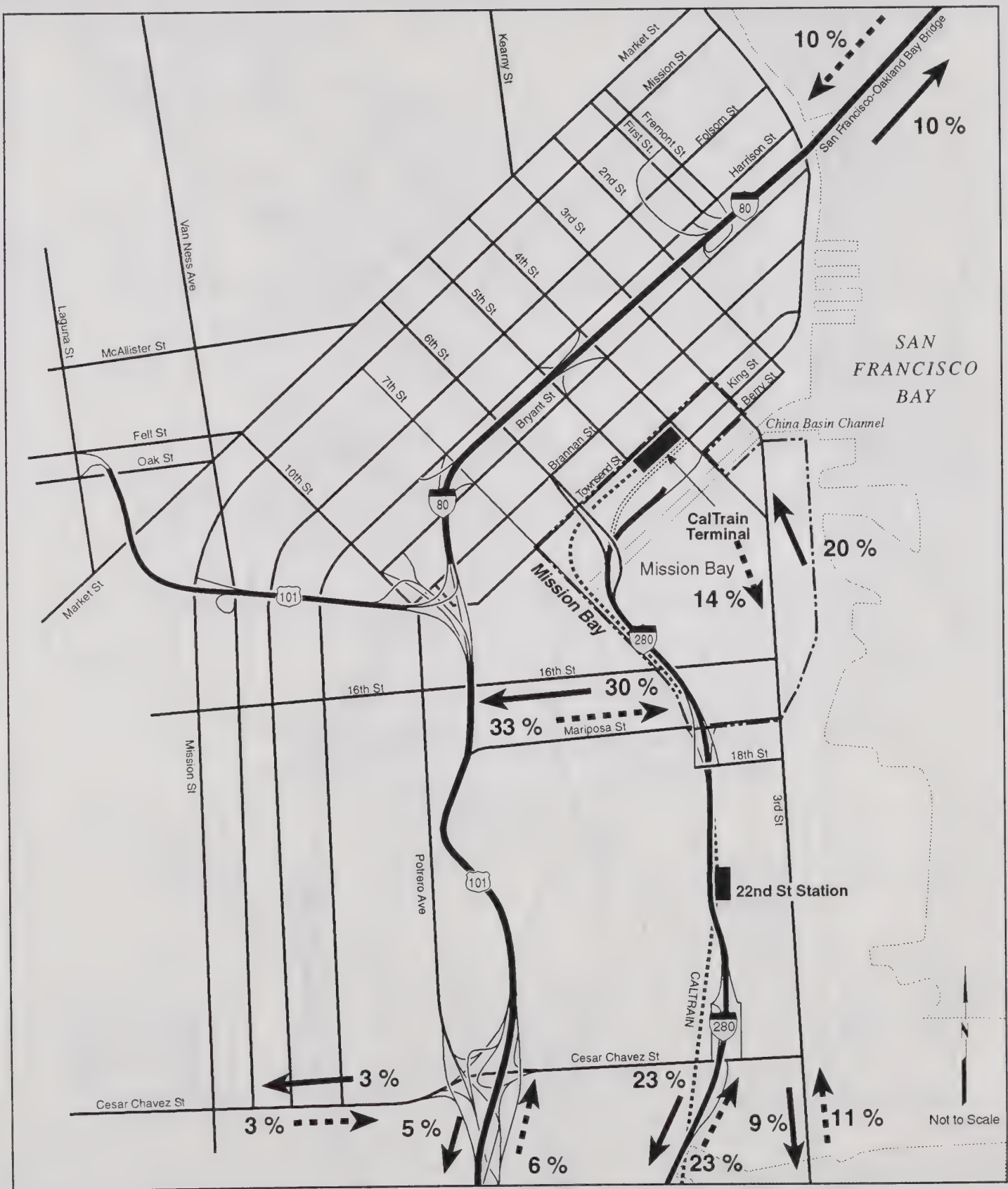
The “shortest path” approach was used to assign traffic generated by the Major New Site to the roadways. This takes into account distance and other roadway characteristics such as capacity, congestion and physical constraints. The shortest path approach assumes that drivers will prefer travel routes that require the shortest time between origin and destination. The trip-assignment process assigns trips to roadways between the origin/destination and the Major New Site.

b. Impacts and Mitigation Measures

Year 2010 daily and peak-hour volumes, capacities and LOS on the study corridors in Mission Bay with the Major New Site are presented in Table A-3-16 in Appendix 3. Refer to Figures 12-13 and 12-14 for a comparison of existing conditions, and year 2010 conditions with and without the Major New Site.

Impact 12C4-1. US 101 and I-280 V/C Ratio Deterioration (Project/Significant). Under year 2010 conditions with the Major New Site, the v/c ratios on the following corridors would deteriorate: US 101 south of Mariposa Street, US 101 south of Cesar Chavez Street and I-280 south of Mariposa Street. Those corridors would already be expected to operate at LOS F, without traffic generated by the Major New Site. These deteriorations of the v/c ratios are considered significant impacts of the project.

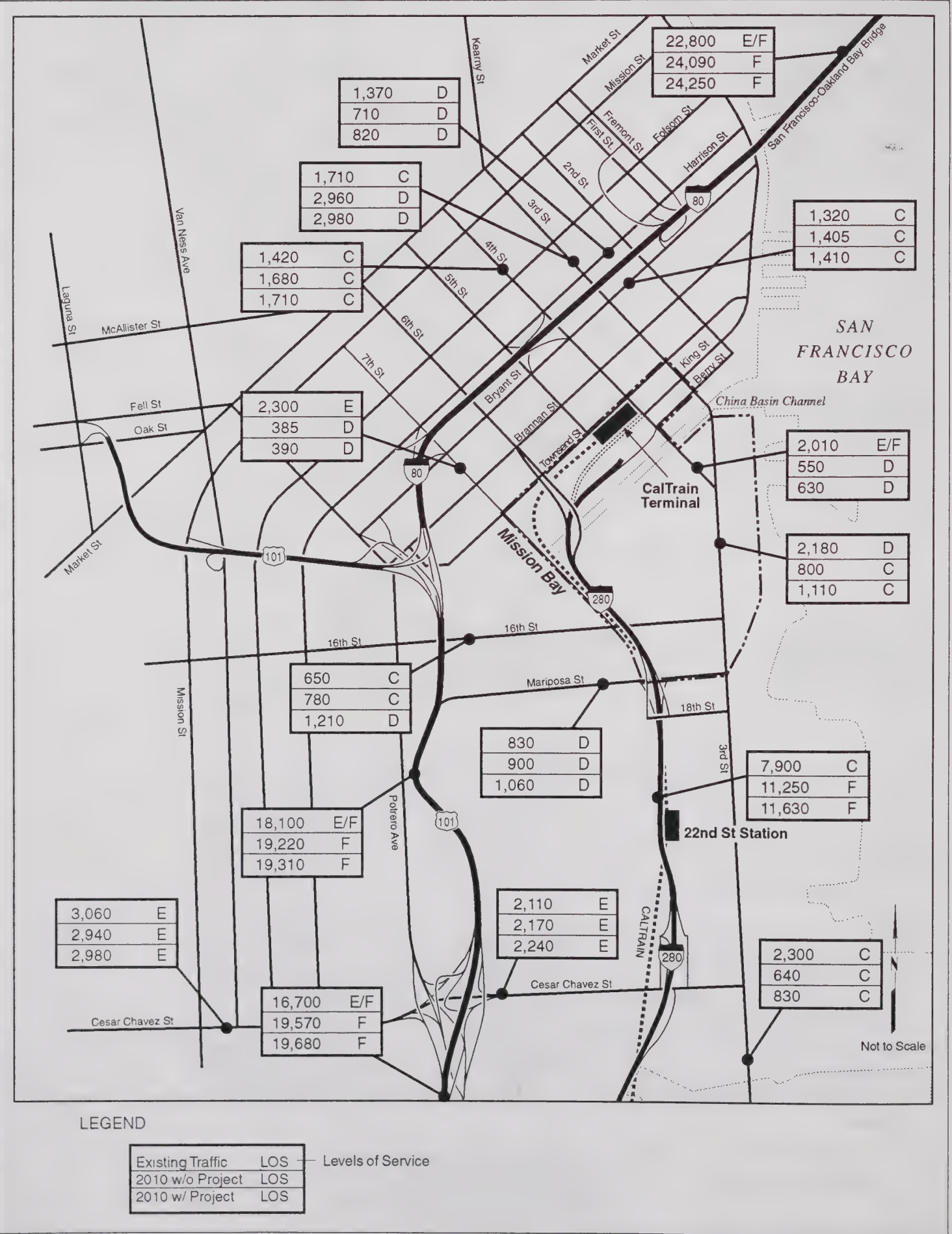
US 101 south of Mariposa Street currently operates at capacity (LOS E/F). Under year 2010 conditions without the Major New Site, US 101 south of Mariposa Street would operate at LOS F during both the am and pm peak hours. The Major New Site would add 90 vehicle trips to this segment of US 101 during the am peak hour, and ten vehicle trips during the pm peak hour. This would cause a deterioration of 0.01 in the v/c ratio in the am peak hour. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because US 101 south of Mariposa Street is or would be at LOS E or LOS F by 2010. (See Figure 12-13).



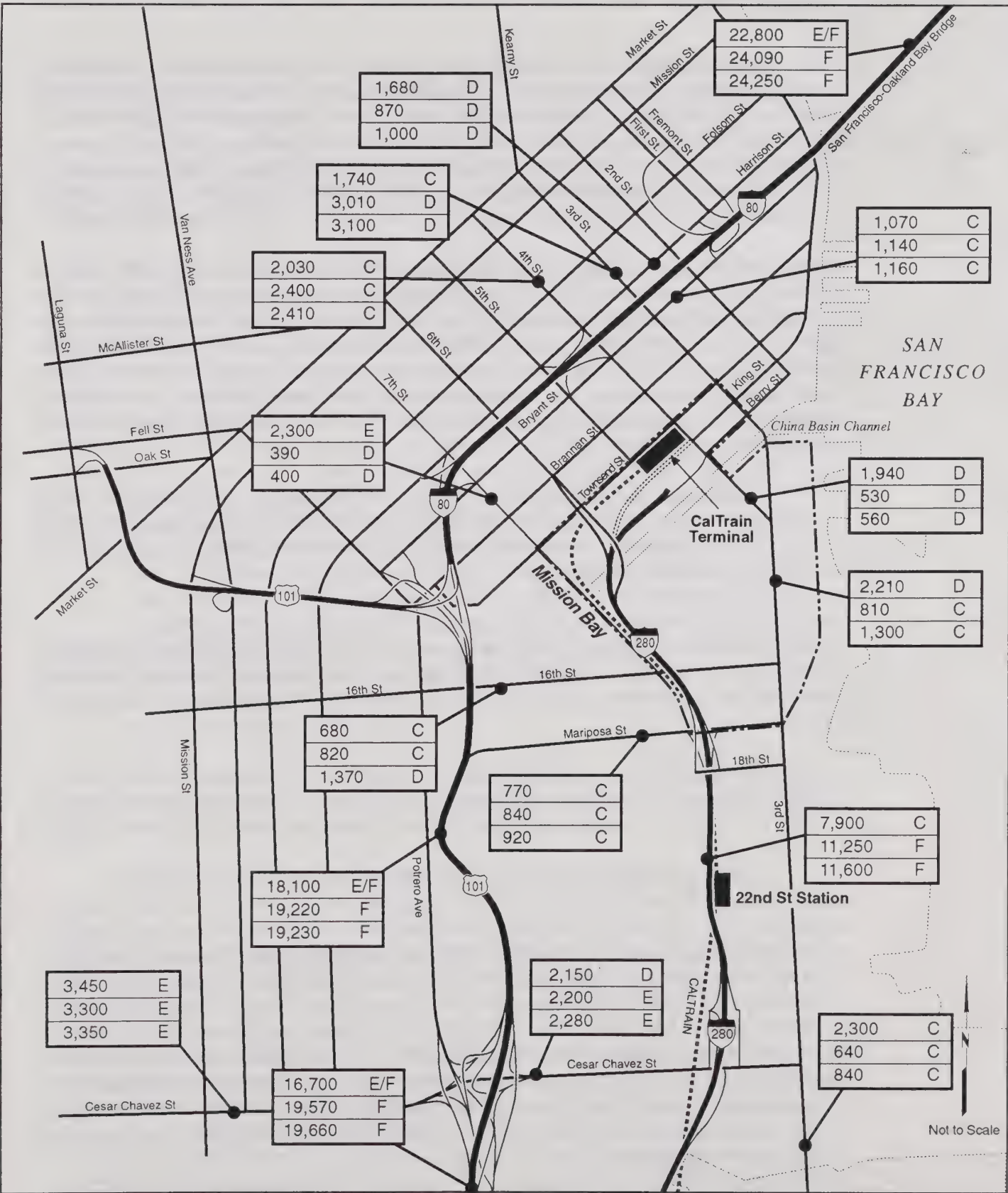
LEGEND

- > Inbound Traffic
- > Outbound Traffic

Notes: 1. Percents indicate the percentage of project trips assigned to various directions. Percents are not necessarily representative of the amount of traffic assigned to individual streets, but rather to directions of travel.



Source: Fehr & Peers Associates, Inc. Transportation Consultants, 1996.



US 101 south of Cesar Chavez Street currently operates at capacity (LOS E/F). Under year 2010 conditions without the Major New Site, US 101 south of Cesar Chavez Street would operate at LOS F during both the am and pm peak hours. The Major New Site would add 110 vehicle trips to this segment of US 101 during the am peak hour. This would cause a 0.01 deterioration of the v/c ratio in both the am and pm peak hours. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because US 101 south of Cesar Chavez Street is or would be at LOS E or LOS F by 2010.

Based on 1988 counts (pre-Loma Prieta Earthquake), it is estimated that I-280 south of Mariposa Street operates at LOS C. Under year 2010 conditions without the Major New Site, I-280 south of Mariposa Street would operate at LOS F during both the am and pm peak hours. The Major New Site would add 380 vehicle trips to this segment of I-280 during the am peak hour and 350 vehicle trips during the pm peak hour. This would cause a 0.04 deterioration of the v/c ratio. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because Mariposa Street is or would be at LOS E or LOS F by 2010.

Mitigation Measure 12C4-1. (Significant/Unavoidable). TDM programs could reduce the impact of the Major New Site by reducing the number of vehicle trips generated, but would not be expected to reduce the effects below the threshold of significance.

Impact 12C4-2. I-80/Bay Bridge Increased Traffic (Project/Less Than Significant). Year 2010 conditions with the Major New Site would add about 1,000 daily trips to the Bay Bridge, but no change in the v/c ratio would occur. This would not be a significant impact.

The Bay Bridge currently operates at capacity (LOS E/F). It is expected to deteriorate to LOS F by the year 2010, without the Major New Site. The Major New Site would add about 1,000 vehicle trips to the Bay Bridge daily, but would not change the v/c ratio of the bridge.

Mitigation Measure 12C4-2. (Less Than Significant). None required.

Impact 12C4-3. Cesar Chavez Street V/C Ratio Deteriorations (Project/Significant). Traffic generated by the Major New Site would result in the deterioration of LOS E conditions on Cesar Chavez Street west of Folsom Street by a v/c ratio of 0.01 during both the am and pm peak hours. Traffic from the Major New Site would also result in the deterioration of LOS E conditions on Cesar Chavez Street west of Evans Avenue by a v/c ratio of 0.02 during the am peak hour and 0.03 during the pm peak hour. Both of these segments of Cesar Chavez Street would already operate at LOS E under year 2010 conditions without the Major New Site. This deterioration of the v/c ratios would be a significant impact.

Cesar Chavez Street west of Folsom Street currently operates at LOS E during both the am and pm peak hours. Under year 2010 conditions without the Major New Site, Cesar Chavez

Street west of Folsom Street would continue to operate at LOS E in both the am and pm peak hours. The Major New Site would add 40 vehicle trips to this segment of Cesar Chavez Street during the am peak hour and 50 vehicle trips during the pm peak hour. This would cause a 0.01 deterioration of the v/c ratio in both the am and pm peak hours. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because Cesar Chavez Street west of Folsom Street is or would be at LOS E or LOS F by 2010.

Cesar Chavez Street west of Evans Street currently operates at LOS E during the am peak hour and LOS D during the pm peak hour. Under year 2010 conditions without the Major New Site, Cesar Chavez Street west of Evans Street would continue to operate at LOS E in both the am and pm peak hours. The Major New Site would add 70 vehicle trips to this segment of Cesar Chavez Street during the am peak hour and 80 vehicle trips during the pm peak hour. This would cause a 0.02 deterioration of the v/c ratio in the am peak hours and a 0.03 deterioration of the v/c ratio in the pm peak hours. This deterioration of a v/c ratio by 0.01 or more would be considered a significant impact of the Major New Site because Cesar Chavez Street west of Evans Street is or would be at LOS E or LOS F by 2010.

Mitigation Measure 12C4-3. (Significant/Unavoidable). The existing right-of-way and configuration on Cesar Chavez Street (a solid median and peak-period turn restrictions at many intersections) limits the improvements available to increase capacity of this corridor. Capacity could be increased only by further restricting peak-period on-street parking and introducing another through lane in each direction. Since the corridor would continue to operate at LOS E in the future, even with these changes this measure would not be warranted. *Implementation of this measure would be within the jurisdiction or responsibility of agencies other than UCSF.*

TDM programs could reduce the extent of the impact of the Major New Site by reducing the number of vehicle trips generated, but would not be expected to reduce the effects below the threshold of significance.

Impact 12C4-4. Increase in MUNI Ridership (Project/Less Than Significant). The Major New Site at Mission Bay would add ridership to MUNI lines expected to serve the Mission Bay area by about 3,390 person-trips per day. MUNI plans to expand service to Mission Bay. The impacts resulting from the Major New Site would not be significant.

The Major New Site would increase MUNI ridership by as much as 3,390 trips per day. This increase in demand would be accommodated by plans to extend MUNI services to the Mission Bay area, as described below. MUNI currently plans to extend service to Mission Bay as development proceeds: the 15-Third Limited would add limited stop service along Third Street; the 47-Van Ness trolley coach extension would move its existing terminal on 11th Street at Howard Street through Mission Bay to a terminal at Third and 16th Streets. If the 47-line were to operate during peak hours only, a different line may be extended into Mission Bay. The 30-Stockton and 45-Union trolley coach terminal at Fourth and Townsend Streets

would be extended through Mission Bay to Potrero Hill and a terminal at Third and 20th Streets. The 22-Fillmore trolley coach would be re-routed onto 16th Street east of Kansas Street to a terminal near Third and 16th Streets.

The MUNI Metro Extension would extend an existing MUNI Metro line to Mission Bay at King Street and Third Street. This project is currently under construction. The N-Judah is the most likely candidate for extension, via the Market Street Subway, The Embarcadero and King Street. Future MUNI Metro extensions in the planning stages would extend service down Third Street to the southeastern area of San Francisco.

This EIR assures that the extension of MUNI services into Mission Bay will occur as development of the Major New Site proceeds. Therefore, the impacts on transit service are not expected to be significant.

Mitigation Measure 12C4-4. (Less Than Significant). None required.

Impact 12C4-5. Increase in Parking Demand (Project/Less Than Significant). The Major New Site at Mission Bay would have a peak demand for about 4,200 parking spaces. The LRDP proposes to develop adequate on-site parking to meet demand at the Major New Site. Therefore, this would not be a significant impact.

On the basis of the trip-generation, the Major New Site at Mission Bay would have an estimated peak demand of about 4,200 parking spaces during a typical weekday, as shown in Table 12-7. The LRDP proposes that the Major New Site provide sufficient parking to meet demand from the Major New Site. The 4,200-space estimated demand for a Major New Site at Mission Bay is less than the 5,300-space demand estimated in the LRDP, calculated at a ratio of two spaces per 1,000 gross square feet of building area. The reduced parking demand reflects transit availability at Mission Bay. Therefore, UCSF parking provided at Mission Bay would be expected to meet demand generated by the Major New Site at Mission Bay.

Mitigation Measure 12C4-5. (Less Than Significant). None required.

Impact 12C4-6. Increase in Daily Pedestrian/Bicycle/Vehicle Conflicts (Project/Less Than Significant). The Major New Site at Mission Bay would generate up to 1,580 pedestrian/bicycle trips per day. The Mission Bay Plan and the LRDP call respectively for provision of adequate pedestrian- and bike-ways in Mission Bay and at the Major New Site. This would not be a significant effect.

The trip-generation analysis estimates that a Major New Site at Mission Bay would generate up to 1,580 pedestrian/bicycle trips per day. The *Mission Bay Plan* and the *Central Waterfront Plan* call for developing a pedestrian-friendly environment in Mission Bay. Guidelines include an extensive network of pedestrian pathways, a pedestrian-oriented and accessible retail and community service area, and other pedestrian-oriented amenities. In Mission Bay, Third, Fourth and Townsend Streets are designated Class III (signed only) bike

**Table 12-7 MISSION BAY
AVERAGE WEEKDAY PARKING DEMAND ESTIMATES**

Population Categories	Average Daily Vehicle Trips ¹	Peak Hour
		Demand Estimates ²
Faculty	552	232
Professional Researchers	6,031	2,533
Staff	2,472	1,038
Visitors	1,161	215
Vendors/Service	600	180
Total	10,816	4,198

Notes:

1. Table 12-6.
2. Parking demand estimates assume that 84 percent of faculty/professional researchers/staff, 37 percent of visitors, and 60 percent of vendors are on-site during the peak parking demand period. Wilbur Smith Associates, UCSF LRDP Parnassus Parking Demand Estimates Discussion Paper, Table 5, May 16, 1994.

Source: Fehr & Peers Associates, 1995.

routes. Third Street and Mariposa Streets are also Preferred Commute Bike Routes recommended for use by experienced bicyclists. There are also provisions to provide secure bicycle parking facilities at major commercial and residential developments, and at transit terminals and major open space areas. Given these factors, the increased volume of pedestrians and bicyclists would not be expected to result in more pedestrian/bicycle/vehicle conflicts.

Mitigation Measure 12C4-6. (Less Than Significant). None required.

c. Potential Ballpark Traffic Issues

The *Mission Bay FEIR* discussed the effects of a *Mission Bay Plan* variant that would include sports facilities: a 20,000-seat arena near Seventh and King Street, and a 45,000-seat baseball stadium adjacent to Mission Bay near Third and King Street. The latter proposal is similar to the current San Francisco Giants ballpark proposed at the same China Basin site. No formal application for the ballpark has been submitted to the City of San Francisco as of the date of publication of this draft EIR. The following general discussion is not, therefore, required under CEQA, but is provided for informational purposes.

The transportation analysis of the variant assumed completion of ballpark in year 2000, with partial buildout of Mission Bay under the Mission Bay Plan. As discussed in Section 12.C.1, this EIR adds Major New Site uses to land use projections for Mission Bay in 2010 as reflected in the MTC Traffic Model. The MTC projections also assume a small part of the *Mission Bay Plan* would be built-out in 2010. The *Mission Bay FEIR* variant included an analysis of traffic conditions resulting from an afternoon game that was sold out, assumed to add vehicle trips to the pm peak hour. The analysis showed conditions reaching LOS E or F at intersections serving stadium traffic. (Note that this was an intersection LOS analysis, compared to the corridor LOS approach used in this EIR.) Mitigation measures identified in that study would enable satisfactory LOS at four intersections serving the stadium. At three other intersections serving freeway ramps, LOS E or F conditions were expected to occur, even with mitigation. The stadium activities, as analyzed in the *Mission Bay FEIR*, were also projected to extend the length of pm peak-period delays at intersections serving the stadium.

With respect to the transportation analysis of the Major New Site at Mission Bay in this EIR, therefore, the development of a baseball stadium would worsen conditions on corridors serving the proposed stadium area, on days or evenings when stadium events would add traffic during peak-hour periods.

The stadium variant analysis discussed stadium parking demand and available parking supply in the Mission Bay area. Stadium parking demand would not directly affect uses at a Major New Site at Mission Bay, which would provide parking adequate to meet its demand (see Impact 12C4-5). Parking developed as part of a Major New Site in Mission Bay would potentially be available for evening events at a stadium near Mission Bay, if that use did not conflict with UCSF needs.

1. a) City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994.
b) Wilbur Smith Associates, *CalTrain Station Location Study: Brisbane/South San Francisco*, March 1992.
c) California Department of Transportation, Division of Traffic Operations, *1993 Traffic Volumes on California State Highways*, July 1994.
d) San Francisco Municipal Railway, *Short-Range Transit Plan and Capital Improvement Program 1993-2002*, October 1993.
2. 1994 traffic counts, City and County of San Francisco, Department of Parking and Traffic.
3. 1994 traffic counts, City and County of San Francisco, Department of Parking and Traffic.
4. 1994 traffic counts, City and County of San Francisco, Department of Parking and Traffic.
5. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994.
6. Institute of Transportation Engineers, *Trip Generation*, 5th Edition, 1991.
7. Wilbur Smith Associates, *Journey to Campus Data Analysis*, September 1991.
8. a) City of Alameda, *City of Alameda General Plan*, February 1991.
b) Kolve Engineering, *Airport Roadway Project Environmental Impact Report Transportation Study*, August 2, 1993.
c) California Department of Transportation, *1993 Traffic Volumes on California State Highways*, July 1994.
9. City of Alameda, *City of Alameda General Plan*, February 1991.
10. Kolve Engineering, *Airport Roadway Project Environmental Impact Report Transportation Study*, August 2, 1993.
11. Institute of Transportation Engineers, *Trip Generation*, 5th Edition, 1991, rates for a "Research and Development Center."
12. a) K.T. Analytics, *Harbor Bay Business Park Association Transportation Systems Management Plan for 1992*, January 30, 1992.
b) Wilbur Smith Associates, *Journey to Campus Data Analysis*, September 1991.
13. Alameda Contra Costa Transit District, *AC Transit Short Range Transit Plan, Fiscal Years 1993-2001*, September 1992.
14. a) City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990.

- b) City and County of San Francisco, Department of City Planning, *Mission Bay Specific Plan and Development Agreement*, 1991.
- c) City and County of San Francisco, Department of City Planning, *Central Waterfront Plan*, 1983.
- 15. City and County of San Francisco, Department of City Planning, *San Francisco Master Plan, Transportation Element*, 1983.
- 16. California Department of Transportation, Division of Traffic Operations, *1993 Traffic Volumes on California State Highways*, July 1994.
- 17. California Department of Transportation, Division of Traffic Operations, *1988 Traffic Volumes on California State Highways*, 1989.
- 18. Fehr & Peers Associates, February 1995.
- 19. San Francisco Municipal Railway, *Short-Range Transit Plan and Capital Improvement Program 1993-2002*, October 15, 1993.
- 20. Association of Bay Area Governments, *Projections '94*, December 1993.
- 21. Institute of Transportation Engineers, *Trip Generation*, 5th Edition, 1991.
- 22. Wilbur Smith Associates, *Journey to Campus Data Analysis*, September 1991.

D. AIR QUALITY

This section includes a summary of the site-specific setting conditions and impact/mitigation analysis specific to air quality considerations at the potential Major New Sites.

This EIR identifies the Development Scenario or “generic” effects and Site-Specific effects of the Major New Site on air quality at Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay as project impacts. However, construction and transportation-related air quality impacts would be similar to effects of buildout of any business park or research and development uses designated in approved plans for those sites, regardless of project sponsor. Air quality impacts, including toxic air contaminant impacts, which may occur regardless of the location selected for the Major New Site are analyzed under the Development Scenario.

1. DEVELOPMENT SCENARIO

a. Impacts and Mitigation Measures

Impact 12D1-1. Air Pollutant Emissions (Construction/Significant). During construction of the Major New Site facilities, the air pollutants generated could cause violations of federal and/or state ambient air quality standards.

Construction-phase air emissions at the Major New Site would be generated by the transport of workers and construction materials to the site, operation of construction equipment at the site, and soil disturbance on the site during construction activities. Excavation and grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed earth surfaces would generate particulate matter less than ten microns in diameter (PM₁₀). The resultant ambient concentrations of PM₁₀ emission near construction sites could exceed emissions standards (see Chapter 3, Section D, Air Quality Regulatory Background, Regional Setting and Methodology).

Mitigation Measure 12D1-1. (Less Than Significant). UCSF would require its contractors to reduce major criteria air pollutant emissions by complying with the air pollution control strategies developed by the Bay Area Air Quality Management District (BAAQMD). UCSF would include the following requirements in all construction contracts:

- Apply dust suppression measures at all active construction areas at least twice a day, or as needed, to prevent visible dust plumes from blowing off-site. Treatments could include water or non-potable water, or crust-forming chemicals such as mineral salts, petroleum resins, asphalt emulsions, acrylics and adhesives.
- Use tarpaulins or other effective covers for on-site storage piles and for haul trucks that travel on public streets.

- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep all paved access routes, parking areas and staging areas daily (preferably with water sweepers).
- Sweep streets daily (preferably with water sweepers) if visible amounts of soil material are carried onto public streets.

If the working area of any construction site exceeds four acres at any one time, implement the following measures in addition to those above:

- Apply (non-toxic) soil stabilizers to inactive construction areas.
- Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.
- Limit construction site vehicle speed to 15 mph on unpaved areas.
- Replant vegetation in disturbed areas as quickly as possible.

If the working area of any construction site is located near any sensitive receptors, implement the following measures in addition to those above:

- Suspend excavation and grading activity when winds exceed 25 mph.

Impact 12D1-2. Operational Stationary Source Criteria Air Pollutant Emissions (Project/Significant). Pollutants emitted by stationary equipment and facilities at the Major New Site such as boilers, emergency generators and a cogeneration facility could interfere with the attainment of regional or local air quality standards.

The Major New Site would include stationary equipment and facilities which would generate criteria air pollutant emissions during operation. These operational sources would include a cogeneration plant, boilers and emergency generators. No incinerator would be installed at the Major New Site. Criteria air pollutant emissions from the new Parnassus Heights Central Utilities Plant were analyzed in the Parnassus Heights *Central Utilities Plant FEIR* and found to be less than significant. It is anticipated that a cogeneration plant at the Major New Site would be similar in size and nature to the Central Utilities Plant at Parnassus Heights and therefore would have less than significant air quality effects.

In addition, sources of criteria air pollutant emissions at the Major New Site would be required to comply with BAAQMD permit conditions and applicable rules and regulations. This would ensure that no significant environmental effects would result from these sources at a Major New Site.

Mitigation Measure 12D1-2. (Less Than Significant). UCSF would operate any proposed boilers, emergency generators or cogeneration equipment in accordance with BAAQMD permit conditions and/or applicable rules and regulations.

Impact 12D1-3. Operational Stationary Toxic Air Contaminant Emissions (Project/Less Than Significant). UCSF operations at the Major New Site would not result in receptors being exposed to toxic air contaminant emissions at or from the Major New Site that would result in a cancer risk greater than ten cancer cases per one million people exposed in a lifetime, or result in concentrations of toxic air contaminants emissions with a Hazard Index of 1.0 or greater.

Toxic air contaminant emissions would be generated at the Major New Site from several stationary sources: research uses, a cogeneration plant, boilers and emergency generators.

The carcinogenic risk posed by UCSF research-related toxic air contaminant emissions at Parnassus Heights would be 0.54 chances in one million at present. This risk is based on a 70-year lifetime of continuous exposure to a maximally exposed individual living near Parnassus Heights. Parnassus Heights has about 760,000 gsf of research space, compared to the 1,220,000 gsf of research use proposed for the Major New Site. Using the ratio of floor areas to estimate the carcinogenic risk from toxic air contaminant emissions related to research uses, the risk to a maximally-exposed individual at the Major New Site would be 0.87 chances in one million. This would be less than the BAAQMD's ten in one million significance criteria and would not require Toxic Best Available Control Technology (TBACT).

Toxic air contaminants emissions would also be generated by a cogeneration plant or utilities plant at the Major New Site. The maximum carcinogenic risk to a maximally exposed individual near the Major New Site would be comparable to that projected for the Parnassus Heights Central Utilities Plant, or 4.7 in one million over a 70-year lifetime of continuous exposure. This would be less than the BAAQMD's ten in one million significance criteria with the implementation of TBACT that would be required as a condition for granting a Permit to Operate a new utilities or cogeneration facility.

Additional emissions would result from other miscellaneous sources at the Major New Site (e.g., steam boilers, emergency generators), but those are expected to be much smaller than research and central utilities plant emissions. The cancer risk from such toxic emissions would be substantially lower than the ten in one million risk criteria. The Major New Site would not have hospital-related uses and therefore would not generate toxic air contaminant emissions from clinical uses. As at Parnassus Heights, the additive cancer risk associated with toxic air contaminant emissions from all UCSF uses at the Major New Site would not exceed the ten in one million standard and the Hazard Index would be less than 1.0. This would be considered a less than significant impact.

Mitigation Measure 12D1-3. (Less Than Significant). None required.

Impact 12D1-4. Mobile Source Toxic Air Contaminant Emissions (Project/Unknown). Major New Site-related mobile sources would contribute to roadside emissions of toxic air contaminants. The significance of this impact is *unknown*.

Vehicle trips generated at the Major New Site would cause exhaust and evaporative emissions from motor vehicles, which are a known source of toxic air contaminants. There is no approved, standardized protocol for assessing the risk associated with mobile source emissions of toxic air contaminants or for combining stationary and mobile sources risks, unlike the protocol that exists for evaluating stationary sources. Furthermore, there is no standard for evaluating the significance of the risk associated with mobile source emissions of toxic air contaminants. Therefore, while the potential risks associated with mobile source toxic air emissions can be qualitatively discussed and can be considered by decision-makers addressing land use decisions that would increase vehicle miles traveled (and thus mobile source emissions), such as development of the Major New Site, a formal determination of the significance of the impact would be speculative and would not be based on accepted scientific principles or methodologies. Thus, the significance of this impact is unknown.

The state and federal requirements for reformulating gasoline and diesel fuel are projected to reduce ambient toxic air contaminant concentrations substantially and to reduce consequential cancer risks.

This suggests that, even the addition of mobile source toxic air emissions resulting from the development of the Major New Site, this impact would be less than significant. Nonetheless, given the lack of an accepted methodology or standard to definitively label this impact as significant or insignificant, it is deemed to be unknown.

Mitigation Measure 12D1-4. (Unknown). None identified.

Impact 12D1-5. Regional Cumulative Toxic Air Contaminants Emissions (Cumulative/Unknown). LRDP could contribute to cumulative increases in the amount of toxic air contaminants emitted in the region. The significance of this impact is unknown.

Screening-level health risk assessments for stationary sources of toxic air contaminant emissions indicate that the location of maximum impact is very localized, i.e., close to the emission sources. UCSF sites and the Major New Site are located at distances greater than 1,000 feet from each other. This distance is sufficiently large to preclude substantial interaction of emissions at any location including non-UCSF sources such as other hospitals and research facilities. Mobile source emissions of toxic air contaminants are being addressed at federal and state level by emissions controls and standards for vehicles and by control of fuel composition.

In addition, there are no accepted methodologies or standards by which to assess the cumulative toxic air emission impacts of all potential stationary and mobile sources of toxic air emissions related to the LRDP. No scientifically sanctioned protocol exists for evaluating mobile and stationary source emissions together or for judging the significance of the resultant

impact. Therefore, the potential cumulative impacts of toxic air emissions are too speculative to evaluate.

When compared to the stationary source criterion, the present levels of toxic air contaminants are high enough to raise concern from the public; however, given the lack of an approved standard or evaluation methods, the mobile source emissions and stationary source emissions from the LRDP activities cannot be reconciled, much less compared meaningfully. Therefore no reasonable determination of the significance of cumulative toxic air emissions impacts can be made with available information, standards and methods. In the event that the information, standards or methodology became available by which to evaluate the significance of cumulative toxic air emissions, then it is UCSF's policy to undertake such analysis and consider implementation of technologically feasible measures that would substantially reduce the projects's contribution to significant emissions.

Mitigation Measure 12D-5. None required.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Air Quality Monitoring Data

Major Criteria Air Pollutants

A five-year summary of the major criteria air pollutant data collected at the BAAQMD monitoring stations at 10 Arkansas Street, approximately four miles to the north of the Brisbane Baylands/Executive Park site, and at 939 Ellis Street (which only measures carbon monoxide), approximately five and a half miles to the north, is given in Table A-4-1 (see Appendix 4).

Motor vehicles are the single most important source of carbon monoxide, the most abundantly emitted pollutant in the area. Existing curbside 1-hour and 8-hour average carbon monoxide concentrations were modeled along six major arterial roadway segments in and near the Brisbane Baylands/Executive Park site, as shown in Table 12-8. The CALINE4 model was initialized, as recommended by the BAAQMD, with meteorological parameters characteristic of worst-case carbon monoxide dispersion conditions, EMFAC7F Version 1.1 carbon monoxide emission rates, and traffic data compiled for this report. Due to the relatively low background carbon monoxide level at this bayfront location and the moderately congested traffic flows on the roadway segments, no violations of the carbon monoxide standards are currently experienced along the area roadways.

Toxic Air Contaminants

Table A-4-2 (see Appendix 4) gives a summary of annual averages of the measured concentrations of toxic air contaminants for the monitoring station located at 10 Arkansas Street in San Francisco.

**TABLE 12-8: BRISBANE BAYLANDS/EXECUTIVE PARK:
CURBSIDE CARBON MONOXIDE CONCENTRATIONS ALONG SELECTED ROADWAYS**

Roadway Segment	Adjacent Land Use	One-Hour Average CO (ppm)			Eight-Hour Average CO (ppm)		
		Existing	Future Baseline (2010)	Future w/LRDP (2010)	Existing	Future Baseline (2010)	Future w/LRDP (2010)
Third N of Thomas	Residential; Retail	11.0	4.4	4.5	7.5	3.0	3.0
Bayshore S of Sunnydale	Commercial/Industrial; Residential	8.1	4.9	5.3	5.5	3.3	3.6
Jamestown	Residential	5.5	3.7	3.7	3.6	2.4	2.5
Alana	Commercial/Office	5.7	5.5	5.7	3.8	3.7	3.9
Beatty	Commercial/Industrial	5.7	3.7	3.7	3.8	2.4	2.5
Geneva W of Schwerin	Residential	8.6	4.5	4.6	5.8	3.0	3.1

There are no violations of ambient CO standards above.

CO Background:

One-Hour Average -- Existing: 5.4 ppm; Future: 3.5 ppm
Eight-Hour Average -- Existing: 3.6 ppm; Future: 2.3 ppm
Source: EIP Associates, March 1996

Ambient CO Standards:

One-Hour Average -- Federal: 35 ppm; State 20 ppm
Eight-Hour Average -- Federal and State: 9 ppm

Sensitive Receptors in the Brisbane Baylands/Executive Park Area

Residential areas border the Executive Park portion of the site across US 101 to the west and a 600-unit residential development is planned at the Executive Park site. Project traffic would pass through the residential areas of the Bayview, Visitacion Valley and Little Hollywood neighborhoods of San Francisco. There are no residential areas immediately adjacent to the Brisbane Baylands portion of the site. Some project traffic would pass through central Brisbane but would be unlikely to concentrate in the uphill residential portion of the city. Prevailing winds are westerly (i.e., from the west) across the area to the bay.

b. Impacts and Mitigation Measures

Impact 12D2-1. Roadside Ambient Carbon Monoxide Levels (Project/Less Than Significant). Vehicle trips associated with the Major New Site at Brisbane Baylands/Executive Park would generate carbon monoxide (CO) emissions on area roads. Those CO emissions, added to background CO emissions, and future cumulative growth expected without the LRDP, would not result in violations of the 1-hour or 8-hour CO standards on roadways in the Brisbane Baylands/Executive Park vicinity.

Future carbon monoxide levels were modeled at curbside receptors along roadway segments in the vicinity of the Major New Site at Brisbane Baylands/Executive Park, as shown in Table 12-8. Traffic from the Major New Site plus the traffic volumes projected for 2010 would not cause or contribute to violations of the carbon monoxide standards, at least in part because of the overall projected reduction in future carbon monoxide levels from more stringent emissions controls.

Mitigation Measure 12D2-1. (Less Than Significant). None required.

Impact 12D2-2. Vehicle Operation Air Pollutant Emissions (Project/Significant). Net new vehicle trips associated with the Major New Site at Brisbane Baylands/Executive Park would generate criteria air pollutants in excess of the BAAQMD 80 lb/day Best Available Control Technology Threshold.

The Major New Site at Brisbane Baylands/Executive Park would generate about 15,800 new vehicular trips per day at full buildout. As shown in Table 12-9, the 86 lb/day of reactive organic gases (ROG), 121 lb/day of nitrogen oxides (NO_x) and 266 lb/day of PM₁₀ emitted by the vehicular trips generated by the Major New Site would exceed BAAQMD significance thresholds. Over the next 15 years, the state-average vehicular emissions of carbon monoxide, reactive organic gases, nitrogen oxides and PM₁₀ per mile traveled are expected to decrease by about 70 percent, 70 percent, 40 percent and 7 percent, respectively. Vehicular ROG, NO_x and PM₁₀ emissions resulting from the Major New Site could interfere with the Bay Area's progress toward attainment of state ambient air quality standards.

TABLE 12-9: COMPARISON OF BRISBANE BAYLANDS/EXECUTIVE PARK SITE VEHICULAR EMISSIONS (YEAR 2010) WITH BAAQMD SIGNIFICANCE THRESHOLDS

Pollutant	Threshold Daily Emissions (lbs)	LRDP Vehicular Daily Emissions (lbs)	Percent of 80 lb/day Threshold
Reactive Organic Compounds (ROG)	80	86.2	108%
Nitrogen Oxides (NO _x)	80	120.5	151%
Particulate Matter (PM ₁₀)	80	266.3	333%

Vehicular emissions were calculated using emission rates from the EMFAC7F1.1 model, developed by the CARB, and average fleet mix, trip lengths, speeds, trip types, and hot/cold start percentages provided by the BAAQMD and Fehr and Peers.
Source: EIP Associates, March 1996

Mitigation Measure 12D2-2. (Significant/Unavoidable). Implement Transportation Demand Management (TDM) measures to reduce vehicular pollutant emissions. TDM are not likely to reduce total trips so as to reduce criteria air pollutant emissions below the 80 lb/day threshold. Therefore this would be an unavoidable effect.

UCSF would implement Transportation Demand Management measures at the Major New Site, as identified in the 1996 LRDP, and Mitigation Measure 12C2-1 for Traffic/Circulation/Parking. These measures include:

- Expand the UCSF shuttle system to include the Major New Site.
- Provide preferential and/or low-cost parking for car pools and van pools.
- Cooperate with public and private transit agencies on routes and scheduling of service.
- Cooperate with local public works agencies to improve street lighting, security, and pedestrian links between UCSF facilities and BART and other public transit connections.
- Sell transit passes on-site.

- Investigate transit pass subsidies for all employees.

Implementation of TDM measures would be expected to reduce net vehicle trips generated at the Major New Site at Brisbane Baylands/Executive Park. However, TDM would not be likely to reduce total trips such that RO_6 , NO_x , PM_{10} emissions would be reduced below the 80 lb/day threshold. Therefore, this would be an unavoidable significant effect.

3. HARBOR BAY

a. Site-Specific Setting

Air Quality Monitoring Data

Major Criteria Air Pollutants

A five year summary of the major criteria air pollutant data collected at the BAAQMD monitoring station in downtown Oakland, approximately six miles to the northwest of the Harbor Bay site, is given in Table A-4-3 (see Appendix 4). Only ozone and carbon monoxide are monitored there. There have been no exceedances of the federal ozone or federal/state carbon monoxide standards over the past five years. Occasional violations of the state ozone standard have been recorded, however. Motor vehicles are the single largest source of carbon monoxide, the most abundantly emitted pollutant in the Bay Area.

The Harbor Bay site is next to one of Oakland Airport's main takeoff and landing routes, so aircraft are local sources of ozone precursors and particulates. Existing curbside 1-hour and 8-hour average carbon monoxide concentrations were modeled along seven major arterial roadway segments near the Harbor Bay site, as shown in Table 12-10. The CALINE4 model was initialized, as recommended by the BAAQMD, with meteorological parameters characteristic of worst-case carbon monoxide dispersion conditions, EMFAC7F Version 1.1 carbon monoxide emission rates, and traffic data compiled for this report. The model indicates that, under a worst-case meteorological assumption, the 8-hour CO standard is exceeded on Doolittle Drive south of Harbor Bay.

Toxic Air Contaminants Table A-4-4 (see Appendix 4) gives a summary of the annual averages of the measured concentrations of toxic air contaminant emissions for the monitoring station located at 198 Oak Road in downtown Oakland, approximately six miles northwest of the Harbor Bay site.

Sensitive Receptors in the Harbor Bay Area

Residential areas border the project site to the north. Many of the street segments that would carry Major New Site traffic pass through these residential areas.

**TABLE 12-10: HARBOR BAY:
CURBSIDE CARBON MONOXIDE CONCENTRATIONS ALONG SELECTED ROADWAYS**

Roadway Segment	Adjacent Land Use	One-Hour Average CO (ppm)			Eight-Hour Average CO (ppm)		
		Existing	Future Baseline (2010)	Future w/ LRDP (2010)	Existing	Future Baseline (2010)	Future w/ LRDP (2010)
High E of Lincoln	Residential	8.0	4.3	4.3	4.5	2.3	2.3
Fernside E of Central	Residential	8.0	5.4	5.4	4.5	3.1	3.0
Island Drive	Residential	9.9	4.9	4.9	5.8	2.7	2.7
Harbor Bay Parkway	Commercial/Office	8.7	4.2	5.1	5.0	2.2	2.9
Doolittle S of Harbor Bay	Commercial/Industrial	16.5	6.8	7.1	10.5	4.0	4.2
Doolittle S of Hegenberger	Commercial/Industrial	8.1	5.0	5.2	4.6	2.8	2.9
Hegenberger W of I-880	Commercial/Industrial	9.8	4.9	5.7	5.8	2.7	3.3

Violations of ambient CO standards above are shown in bold.

CO Background:

One-Hour Average -- Existing: 5.4 ppm; Future: 3.5 ppm
 Eight-Hour Average -- Existing: 2.7 ppm; Future: 1.7 ppm
 Source: EIP Associates, March 1996

Ambient CO Standards:

One-Hour Average -- Federal: 35 ppm; State 20 ppm
 Eight-Hour Average -- Federal and State: 9 ppm

b. Impacts and Mitigation Measures

Impact 12D3-1. Roadside Ambient Carbon Monoxide Levels (Project/Less Than Significant). Vehicle trips associated with the Major New Site at Harbor Bay would generate carbon monoxide (CO) emissions on area roads. Those CO emissions, added to background CO emissions, and future cumulative growth expected without the Major New Site, would not result in violations of the 1-hour or 8-hour CO standards on roadways at or near the Harbor Bay site.

Future carbon monoxide levels were modeled at curbside receptors along seven roadway segments in the vicinity of the Major New Site at Harbor Bay, as shown in Table 12D-3. Traffic from the Major New Site would not cause or contribute to violations of the carbon monoxide standards in the future total traffic volumes, at least in part because of the overall projected reduction in future carbon monoxide levels from more stringent emissions controls.

Mitigation Measure 12D3-1. (Less Than Significant). None required.

Impact 12D3-2. Vehicle Operation Air Pollutant Emissions (Project/ Significant). Net new vehicle trips associated with the Major New Site at Harbor Bay would generate criteria air pollutants in excess of the BAAQMD 80 lb/day Best Available Control Technology Threshold.

A Major New Site at Harbor Bay would generate about 16,400 new vehicular trips per day at full buildout. As shown in Table 12-11, the 89 lb/day of ROG, 124 lb/day of NO_x and 277 lb/day of PM₁₀ emitted by the vehicular trips generated by the Major New Site at Harbor Bay would exceed BAAQMD significance thresholds. The EMFAC7F1.1 model projects that over the next 15 years, the state-average vehicular emissions of carbon monoxide, reactive organic gases, nitrogen oxides and PM₁₀ per mile traveled are expected to decrease by about 70 percent, 70 percent, 40 percent and 7 percent respectively. Vehicular ROG, NO_x and PM₁₀ emissions resulting from the Major New Site could interfere with the Bay Area's progress toward attainment of state ambient air quality standards.

Mitigation Measure 12D3-2. (Significant/Unavoidable). Implement Transportation Demand Management (TDM) measures to resolve vehicular pollutant emissions. TDM are not likely to reduce total trips so as to reduce criteria air pollutant emissions below the 80 lb/day threshold. Therefore this would be an unavoidable effect.

UCSF would implement Transportation Demand Management measures at the Major New Site, as identified in the 1996 LRDP, and Mitigation Measure 12C2-1 for Traffic/Circulation/Parking. These measures include:

- Expand the UCSF shuttle system to include the Major New Site.
- Provide preferential and/or low-cost parking for car pools and van pools.

TABLE 12-11: COMPARISON OF HARBOR BAY SITE VEHICULAR EMISSIONS (YEAR 2010) WITH BAAQMD SIGNIFICANCE THRESHOLDS

Pollutant	Threshold Daily Emissions (lbs)	Daily Emissions (lbs)	Percent of 80 lb/day Threshold
ROG	80	89.4	112%
No _x	80	124.4	156%
PM ₁₀	80	277.2	347%

Vehicular emissions were calculated using emission rates from the EMFAC7F1.1 model, developed by the CARB, and average fleet mix, trip lengths, speeds, trip types, and hot/cold start percentages provided by the BAAQMD and Fehr and Peers.

Source: EIP Associates, March 1996

- Cooperate with public and private transit agencies on routes and scheduling of service.
- Cooperate with local public works agencies to improve street lighting, security, and pedestrian links between UCSF facilities and BART and other public transit connections.
- Sell transit passes on-site.
- Investigate transit pass subsidies for all employees.

Implementation of TDM measures would be expected to reduce net vehicle trips generated at the Major New Site at Brisbane Baylands/Executive Park. However, TDM would not be likely to reduce total trips such that RO₆, No_x, PM₁₀ emissions would be reduced below the 80 lb/day threshold. Therefore, this would be an unavoidable significant effect.

4. MISSION BAY

a. Site-Specific Setting

Air Quality Monitoring Data

Major Criteria Air Pollutants

A five-year summary of the major criteria air pollutant data collected at the BAAQMD monitoring stations at 10 Arkansas Street, approximately one-half mile to the south of the

Mission Bay site, and at 939 Ellis Street (which only measures carbon monoxide), approximately two miles to the northwest, is given in Table A-4-1 (see Appendix 4).

Major sources of air emissions in the Mission Bay area include a train terminal, private bus yards, a coffee-roasting firm and two concrete plants where concrete is produced from cement and aggregate for packaging or transport. Ship repair firms adjacent to Mission Bay on the east are also major industrial sources of air emissions. Motor vehicles, however, are the single most important source of the most abundantly emitted pollutant, carbon monoxide.

Existing curbside 1-hour and 8-hour average carbon monoxide concentrations were modeled along nine major arterial roadway segments on and near the Mission Bay site, as shown in Table 12-12. The CALINE4 model was initialized, as recommended by the BAAQMD, with meteorological parameters characteristic of worst-case carbon monoxide dispersion conditions, EMFAC7F Version 1.1 carbon monoxide emission rates, and traffic data compiled for this report. Due to San Francisco's relatively high background carbon monoxide level and the relatively high volumes and low travel speeds of motor vehicles on the roadway segments, the model indicates that, under worst-case meteorological assumptions, the 9:00 pm 8-hour standard is currently exceeded on Seventh Street south of Bryant Street, and on Cesar Chavez Street west of Folsom Street.

Toxic Air Contaminants

Table A-4-2 (see Appendix 4) gives a summary of the annual averages of the measured concentrations of toxic air contaminant emissions for the monitoring station located at 10 Arkansas Street, approximately one-half mile to the south of the Mission Bay site.

Sensitive Receptors in the Mission Bay Area

Many sensitive land uses exist in the Mission Bay area. The most proximate are the China Basin Channel houseboats, the San Francisco Recreational Vehicle Park, and the Washington Hotel. Other residential uses are scattered throughout the Mission Bay vicinity. Several of the street segments that would carry traffic generated by the Major New Site at Mission Bay pass through these residential areas including: Third Street south of 16th Street, Cesar Chavez Street west of Folsom Street, Mariposa Street west of I-280, Third Street south of Folsom Street and Fourth Street south of Howard Street. Under the city's approved *Mission Bay Plan*, future office, commercial and industrial uses could be developed along King Street to the north and Owens Street to the west. Residential uses could be developed throughout the rest of the parcel, with high density units to be between Berry Street and the China Basin Channel.

**TABLE 12-12: MISSION BAY:
CURBSIDE CARBON MONOXIDE CONCENTRATIONS ALONG SELECTED ROADWAYS**

Roadway Segment	Adjacent Land Use	One-Hour Average CO (ppm)			Eight-Hour Average CO (ppm)		
		Existing	Future Baseline (2010)	Future w/ LRDP (2010)	Existing	Future Baseline (2010)	Future w/ LRDP (2010)
3rd near Chavez	Commercial/Industrial	11.5	5.5	5.6	7.8	3.7	3.7
3rd S of 4th	Vacant; some Residential N of 23rd; proposed future Residential	13.0	5.6	5.9	8.8	3.8	4.0
3rd S of Folsom	Commercial/Retail at street level; Residential 2nd story & up	11.0	6.6	7.4	7.4	4.5	5.0
4th S of Mission Bridge	Commercial/Industrial or Vacant	12.8	5.6	5.6	8.7	3.8	3.8
4th S of Howard	Commercial/Retail at street level; Residential 2nd story & up	11.5	6.5	6.5	7.8	4.4	4.4
7th S of Bryant	Commercial/Retail	16.3	5.5	5.5	11.1	3.7	3.7
Bryant W of 2nd	Commercial/Retail at street level; Possible 2nd story live/work	9.8	5.8	5.8	6.6	3.9	3.9
Harrison W of 2nd	Commercial/Office	11.6	5.8	5.9	7.8	3.9	3.9
Chavez W of Folsom	Residential	17.9	8.1	8.2	12.3	5.5	5.6
Chavez W of Evans	Commercial/Industrial	12.9	6.7	7.5	8.7	4.5	5.1
Mariposa W of I-280	Residential	9.6	5.7	5.8	6.5	3.8	3.9
16th E of Rhode Island	Commercial/Industrial	9.4	5.7	6.3	6.3	3.8	4.3

Violations of ambient CO standards above are shown in bold.

CO Background:

One-Hour Average – Existing: 8.1 ppm; Future: 5.2 ppm

Eight-Hour Average – Existing: 5.4 ppm; Future: 3.5 ppm

Source: EIP Associates, March 1996

Ambient CO Standards:

One-Hour Average – Federal: 35 ppm; State 20 ppm

Eight-Hour Average – Federal and State: 9 ppm

b. Impacts and Mitigation Measures

Impact 12D4-1. Roadside Ambient Carbon Monoxide Levels (Project/Less Than Significant). At full buildout, carbon monoxide emissions from the Major New Site at Mission Bay and cumulative traffic, combined with the regional carbon monoxide background, would not produce carbon monoxide standard violations in the vicinity of the Major New Site. Thus, project carbon monoxide impacts would be less than significant.

Future carbon monoxide levels were modeled at curbside receptors along nine roadway segments in the project vicinity as shown in Table 12 -12 Traffic from the Major New Site would not measurably increase carbon monoxide levels along any of the roadway segments nor would it cause or contribute to violations of the carbon monoxide standards, at least in part because of the overall projected reduction in future carbon monoxide levels from more stringent emissions controls.

Mitigation Measure 12D4-1. (Less Than Significant). None required.

Impact 12D4-2. Vehicle Operation Air Pollutant Emissions (Project/Less Than Significant). Net new vehicle trips associated with the Major New Site at Mission Bay would generate criteria air pollutants in excess of the BAAQMD 80 lb/day Best Available Control Technology threshold.

A Major New Site at Mission Bay would generate about 12,100 new vehicular trips per day at full buildout. As shown in Table 12 -13, the 67 lb/day of ROG would meet the threshold; however, the 98 lb/day of NO_x and 206 lb/day of PM₁₀ emitted by vehicular trips generated by the Major New Site at Mission Bay would exceed BAAQMD significance thresholds. The EMFAC7F1.1 model projects that over the next 15 years, the state-average vehicular emissions of carbon monoxide, reactive organic gases, nitrogen oxides and PM₁₀ per mile traveled are expected to decrease by about 70 percent, 70 percent, 40 percent and 7 percent respectively. Vehicular NO_x and PM₁₀ emissions resulting from the Major New Site could interfere with the Bay Area's progress toward attainment of state ambient air quality standards.

Mitigation Measure 12D4-2. (Significant/Unavoidable). Implement Transportation Demand Management (TMD) measures to reduce vehicular pollutant emissions. TDM are not likely to reduce total trips so as to reduce criteria air pollutant emissions below the 80 lb/day threshold. Therefore this would be an unavoidable effect.

UCSF would implement Transportation Demand Management measures at the Major New Site, as identified in the LRDP, and Mitigation Measure 12C2-1 for Traffic/Circulation/Parking. Those measures include:

- Expand the UCSF shuttle system to include the Major New Site.

TABLE 12-13: COMPARISON OF MISSION BAY SITE VEHICULAR EMISSIONS (YEAR 2010) WITH BAAQMD SIGNIFICANCE THRESHOLDS

Pollutant	Threshold Daily Emissions (lbs)	LRDP Vehicular Daily Emissions (lbs)	Percent of 80 lb/day Threshold
ROG	80	67.3	84%
NO _x	80	97.8	123%
PM ₁₀	80	205.8	258%

Vehicular emissions were calculated using emission rates from the EMFAC7F1.1 model, developed by the CARB, and average fleet mix, trip lengths, speeds, trip types, and hot/cold start percentages provided by the BAAQMD and Fehr and Peers.

Source: EIP Associates, March 1996.

- Provide preferential and/or low cost parking for carpools and vanpools. Cooperate with public and private transit agencies on routes and scheduling of service.
- Cooperate with local public works agencies to improve street lighting, security and pedestrian links between UCSF facilities and BART and other public transit connections.
- Sell transit passes on-site.
- Investigate transit pass subsidies for all employees.

Implementation of TDM measures would be expected to reduce net vehicle trips generated at the Major New Site at Brisbane Baylands/Executive Park. However, TDM would not be likely to reduce total trips such that RO₆, NO_x, PM₁₀ emissions would be reduced below the 80 lb/day threshold. Therefore, this would be an unavoidable significant effect.

E. NOISE

This section describes existing noise conditions near each of the potential Major New Sites. The discussion also identifies noise-sensitive uses in the vicinity of each of the potential Major New Sites. The potential for traffic and other operational noise effects at each of the sites is described, as well as potential effects on sensitive land uses in relation to applicable noise standards. Impacts would vary at each of the three sites due to differing land uses, roadway networks and traffic volume patterns.

This EIR identifies the Development Scenario or Site-Specific effects of the Major New Site on noise conditions at Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay as project impacts. However, those impacts would be similar to effects of buildout of a business park or research and development uses designated in approved plans for those sites, regardless of project sponsor.

1. DEVELOPMENT SCENARIO

a. Impacts and Mitigation Measures

Impact 12E1-1. Construction Noise (Construction/Significant). During construction of UCSF facilities at a Major New Site, the noise generated from the construction activities would exceed the maximum limits specified by local noise ordinances. This would be a temporary but significant impact during the development of the Major New Site.

Noise would be generated by construction equipment involved with development of the Major New Site. Total noise levels generated by construction equipment would depend on the mix of equipment types used, the duration of construction activities and whether or not noise control measures were being employed. Although UCSF's plans for development of the Major New Site are not specific enough at this time to accurately predict construction noise levels and consequent off-site impacts, the noise emitted from several pieces of construction equipment operating simultaneously in proximity to each other could easily exceed 80 dBA at 100 feet from the construction site which, for example, is the standard of significance in the San Francisco Noise Ordinance.

As an example, in San Francisco, failure to comply with the provisions of the city's Noise Ordinance (i.e., reduce construction noise to the maximum feasible extent, forbidding the use of impact tools like jackhammers, pile drivers and impact wrenches lacking intake and exhaust mufflers meeting San Francisco Department of Public Works specifications, or unauthorized nighttime construction work) would be considered a significant noise effect.

Mitigation Measure 12E1-1. (Significant/Unavoidable). UCSF would require construction contractors to minimize unavoidable construction noise impacts resulting from development of the Major New Site by use of proper equipment and work scheduling:

- As feasible, limit construction hours to between 7:00 am and 8:00 pm on weekdays and prohibit all work on weekends.
- Require use of construction equipment with noise reduction devices, i.e. (mufflers in good working order).
- Erect temporary noise walls to protect adjacent noise-sensitive areas. Use of impact tools would be minimized to the extent possible.
- Locate stationary noise sources away from residential or other sensitive receptor areas, and require use of acoustic shielding with such equipment when feasible and appropriate.

These mitigations would not, in all cases, reduce impacts to a less-than-significant level and therefore a temporary but significant and unavoidable impact would result.

Impact 12E1-2. Operational Noise from Stationary Equipment (Project/ Significant).

Noise generated by ventilation and air conditioning equipment, a cogeneration plant, and other stationary equipment at the Major New Site could have an adverse impact on noise-sensitive uses on-site and in adjacent neighborhoods.

Stationary equipment anticipated for the Major New Site, i.e. (chillers, pumps and air compressors), and the proposed cogeneration plant with its associated cooling towers would generate significant noise. These stationary sources could generate operational noise that could effect sensitive noise receptors, if any, located at the Major New Site or in adjacent neighborhoods.

Mitigation Measure 12E1-2. (Less Than Significant). UCSF would incorporate standard industrial noise control measures for stationary equipment at the Major New Site and would adopt noise performance standards insuring that operational noise from UCSF sources at the Major New Site would not exceed noise levels set forth in local general plans or ordinances for adjacent areas based on their use. If ambient noise levels in areas adjacent to the Major New Site already exceed local noise standards, UCSF would not increase average daily noise levels (L_{dn}) from operational noise sources by three or more dBA at property lines.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

Major Noise Sources

a. Site-Specific Setting

The major source of ambient noise in the vicinity of the Major New Site at Brisbane Baylands/Executive Park is vehicle traffic on the roadway network, including US 101 and

Bayshore Boulevard. CalTrain and freight trains use the Southern Pacific rail line within the Brisbane Baylands portion of the Major New Site. Because of the proximity to the San Francisco International Airport to the south, aircraft are also noise sources at this site.

Sensitive Receptors

The Brisbane Baylands area contains either industrial uses or vacant land. At Executive Park, occupants of existing office buildings are the only noise receptors on-site currently. The residential neighborhoods of Bayview, Visitacion Valley and Brisbane lie to the north, west and south of the site, respectively. Once constructed, the 600 dwelling units at executive Park would be sensitive receptors.

Existing Noise Levels

Brisbane Baylands

Typical background noise levels at Brisbane Baylands were monitored on August 10, 1994, at a location about 100 feet west of Tunnel Road. The average noise level was 50 dBA. Noise levels ranged from a low of 46 dBA to a high of 65 dBA during a jet aircraft overflight.

Noise from CalTrain passenger commuter trains ranged from 78 dBA at a distance of about 200 feet from the monitoring point, to 84 dBA at 100 feet. The 24-hour average noise level was calculated using measurement data from an individual train passing by and the number of trains per day. The calculated L_{dn} is 64 dBA 100 feet from the centerline of the tracks. The 65 L_{dn} noise contour would be located at about 85 feet from the centerline of the railroad tracks. High-speed railroad trains are also a source of ground-borne vibration. Studies indicate that problematic ground vibration levels can occur at distances of up to 600 feet from the tracks for uses where low ambient vibration is essential to special interior operation (i.e., research labs). For institutional land uses with primarily daytime operations, 120 feet would be a sufficient buffer zone.¹

Existing aircraft noise data are available from the Quarterly Noise Reports prepared for San Francisco International Airport.² The report shows the aircraft-generated L_{dn} to be 58 dBA at the Brisbane Baylands/Executive Park area.

The Noise Element of the *Brisbane General Plan* sets forth policies and programs related to noise and land use planning. Program 184a directs the use of the State Guidelines for land use compatibility to determine noise impacted uses.³ Under these guidelines, the maximum L_{dn} considered "satisfactory, with no special noise insulation requirements" are as follows:

Residential	60 dBA
Schools, Libraries	60 dBA
Commercial (office, retail)	65 dBA
Commercial (industrial, manufacturing)	70 dBA

By those criteria, the existing noise environments along US 101 and Bayshore Boulevard are "conditionally acceptable" for both residential and commercial land uses, but there are currently no residential uses in those roadway corridors.

Executive Park

Noise levels were measured at two locations at Executive Park on September 27, 1994. The first was in the parking lot north of the existing Office Building 2. Typical midday noise levels ranged from 61 to 63 dBA. The L_{dn} level is estimated to be about 65 dBA. The dominant noise source is freeway traffic on US 101. Jet aircraft overflights generated the highest single-event noise levels in the range of 71 to 73 dBA. The second measurement was made on the top of the berm overlooking the freeway to estimate upper-story exposure of existing office buildings at Executive Park. The mid-afternoon L_{eq} level was 72 dBA and the estimated L_{dn} is 72 to 75 dBA.

Existing L_{dn} levels were calculated along two freeway segments (at a 150-foot setback from the center line) and six arterial roadway segments (at the closest land use setback) in the Brisbane Baylands/Executive Park vicinity. The L_{dn} levels along the freeway segments are in the low 80 dBAs, while the L_{dn} levels along the arterial roadway segments range from the mid 50s to the low 70s dBA.

The noise exposure criteria established by San Francisco are a function of land use. The maximum L_{dn} considered "satisfactory, with no special noise insulation requirements" are as follows:

Residential	60 dBA
Educational (classrooms, libraries)	65 dBA
Commercial (office, retail)	70 dBA
Commercial (industrial, manufacturing)	77 dBA

By those criteria, the existing noise environments along US 101, Third Street and Bayshore Boulevard are "conditionally acceptable" for the mixed residential and commercial/retail uses they contain.

Site-Specific Standards and Methods

San Francisco noise standards include the Noise Ordinance, Article 29 of the Police Code. The noise ordinance includes the following standard:

- Noise levels in residential neighborhoods should be limited to 50 dBA between 10:00 pm and 7:00 am and 55 dBA in the daytime.

The *San Francisco Master Plan* Environmental Protection Element, Land Use Compatibility Chart for Community Noise, and the *Brisbane General Plan* include the following:

- During project operation, a project increment of three or more dBA would be significant.

b. Impacts and Mitigation Measures

Impact 12E2-1. Traffic Noise Compatibility with Residential Area (Project/Less Than Significant). Noise levels along Third Street, Bayshore Boulevard, and Geneva Avenue would exceed the 60 dBA compatibility criteria for residential uses, with future traffic conditions in 2010, without development of the Major New Site. Traffic related to the Major New Site and other cumulative projects would increase noise levels along Bayshore and Jamestown corridors by three dBA or more. This would be a significant cumulative effect.

Future noise levels were modeled at the closest characteristic land uses along six arterial roadway segments in the vicinity of a Major New Site at Brisbane Baylands/Executive Park (see Table 12-14). Traffic generated by the Major New Site in 2010 would not increase noise levels by three dBA or more along any of the corridors. Third Street, Bayshore Boulevard, and Geneva Avenue are streets where existing noise levels exceed the “satisfactory” level in the *San Francisco Master Plan* and the *Brisbane General Plan*. For these three heavily traveled arterials, that are adjoined by mixed residential, retail and other commercial land uses, this EIR uses the 60 dBA residential compatibility criterion. Noise levels there with traffic conditions without development of the Major New Site would range from the mid 60s dBA to the mid 70s dBA.

Standard residential structures typically attenuate noise by about 20 dBA. However, there can be considerable variation from these conditions; attenuation values as low as 15 dBA would not be unusual, particularly in older, wood-frame residential structures. In the future roadside noise environment of Third Street, Bayshore Boulevard, and Geneva Avenue, residential structures that do not provide between 20 dBA to 30 dBA of acoustic attenuation would not meet the 45 dBA interior L_{dn} standard in their street-facing rooms.

Mitigation Measure 12E2-1. (Less Than Significant). None required.

Impact 12E2-2. Traffic Noise Compatibility on Jamestown Avenue (Project/Significant). Noise levels along Jamestown Avenue are currently about 56dBA, and meet the 60 dBA compatibility criterion. Future traffic conditions without the Major New Site, noise levels would increase to 64 dBA, and would not meet the compatibility criterion. Traffic related to the Major New Site would increase noise levels by one dBA. This contribution to a substantial change in noise levels would be a significant effect.

Jamestown Avenue, north of Bayview Hill, is a residential street with a modeled noise level of 56 dBA, meeting the 60 dBA compatibility criterion for residential uses. Future traffic without the development of the LRDP, would increase noise levels to about 64 dBA, above the compatibility threshold for residential users. Traffic related to the Major New Site would

TABLE 12-14: BRISBANE BAYLANDS/EXECUTIVE PARK:
MODELED TRAFFIC NOISE NEAR SELECTED ROADWAYS

Roadway Segment	Adjacent Land Use	Ldn (dBA)				Relationship with Compatibility Criteria ²		
		Existing	Future Baseline (2010)	Future w/LRDP (2010)	Applicable Standard ¹ (dBA)	Meets Criteria	Meets Criteria or Would Not Exceed 3 dBA Increment	
						Existing	Future Baseline	Future w/LRDP
Third N of Thomas	Residential; Retail	73	74	75	60	No	No	Yes
Bayshore S of Sunnydale	Commercial/Industrial; Residential	72	74	75	60	No	No	Yes
Jamestown	Residential	56	64	65	60	Yes	No	Yes
Alana	Commercial/Office	64	70	71	70	Yes	No	Yes
Beatty	Commercial/Industrial	60	63	64	70	Yes	No	Yes
Geneva W of Schwerin	Residential	72	73	74	60	No	No	Yes

Notes:

- Noise exposure standard is the *City and County of San Francisco Master Plan*, Environmental Protection Element, Land Use Compatibility Chart for Community Noise and, for Brisbane, the State of California General Plan Guideline. Noise standard entries are the highest levels considered "satisfactory, with no special noise insulation requirements" for most noise-sensitive land use in the roadway corridor.
- Compatibility Criteria:
 Existing: Existing Ldn is within the range defined as "satisfactory with no special noise insulation requirements."
 Future: Future conditions without LRDP is within compatibility criteria, or would not increase noise levels already above criteria by more than 3 dBA.
 Future Baseline: Future conditions with LRDP is within compatibility criteria, or would not increase noise levels already above criteria by more than 3 dBA.

Source: EIP Associates, March 1996

increase noise levels by one dBA. Because the cumulative noise increase would be substantial, about nine dBA, and would exceed the compatibility criteria, this would be considered a significant, unavoidable effect.

Mitigation Measure 12E2-2. (Significant/Unavoidable). As noted above in Impact 12E2-1, standard residential construction would not necessarily attenuate noise to acceptable levels.

Impact 12E2-3. Alana Way Traffic Noise (Project/Significant). Traffic generated by the Major New Site would increase future noise levels on Alana Way from 70 dBA to 71 dBA. This would exceed the 70 dBA compatibility threshold for commercial uses. This would be a significant effect of the project.

Alana Way, serving the Executive Park site, has a modeled noise level of 64 dBA, meeting the 70 dBA compatibility criterion for commercial uses. Future traffic without development of the LRDP, would increase noise levels to 70 dBA, which is within the criterion. Traffic generated by the Major New Site would increase noise levels to 71 dBA, above the compatibility threshold, this would be a significant impact.

Mitigation Measure 12E2-3. (Project/Less Than Significant). Commercial development near Alana Way would primarily be existing office uses at Executive Park, and proposed uses with the Major New Site. Those structures would be expected to attenuate noise by about 20 dBA, and would provide interior noise conditions of 50 dBA or less. This would avoid the significant noise effects.

Impact 12E2-4. Railroad Vibration (Project/Significant). Vibrations generated by CalTrain commute service and the Southern Pacific freight trains that use the railroad line in the Brisbane Baylands portion of the Major New Site could have an adverse impact on vibration-sensitive research activity.

Ground-borne vibration from train movements could be disruptive to vibration-sensitive research activity. Vibration impact severity can vary considerably depending on site geology, but problematic vibration levels could be experienced as far as 600 feet from the track. Further study would be needed to define the magnitude of the impact and, if necessary, to formulate mitigations.

Mitigation Measure 12E2-4. (Less Than Significant). UCSF would perform a vibration assessment of the Major New Site and, if necessary, would develop measures to insulate vibration-sensitive research activity from train vibration through building design and construction standards, or would modify the site plan to relocate vibration-sensitive uses elsewhere on the site.

3. HARBOR BAY

a. Site-Specific Setting

Major Noise Sources

Because of the Major New Site's proximity to one of the main takeoff and landing routes from the Metropolitan Oakland International Airport, jet aircraft are the most influential noise sources. Vehicular traffic on the roadway network is also a noise source.

Sensitive Receptors

The Kinder Care pre-school, on North Loop Road, and occupants of existing office buildings at the Harbor Bay Business Park, to the east and south of the Major New Site areas, are the nearest sensitive noise receptors. There is extensive residential development just to the north of the Harbor Bay Business Park boundary. The closest of the Highland Homes residences come within a few hundred feet of the Major New Site.

Existing Noise Levels

The Major New Site is within the 65 dBA Community Noise Equivalent Level (CNEL) aircraft noise contact and is expected to remain within it in the future.⁴ Existing L_{dn} levels were calculated along two freeway segments (at a 150-foot setback from the center line) and seven arterial roadway segments (at the closest land use setback) in the Harbor Bay area and vicinity. As shown in Table 12-15, the L_{dn} levels along the arterial roadway segments range from the upper 60s to the mid 70s dBA.

The *Alameda General Plan* Health and Safety Element incorporates Table 8-1, Land Use Compatibility Standards for Community Noise Environments, taken from the State of California General Plan Guidelines, June 1987. The maximum L_{dn} considered "satisfactory, with no special noise insulation requirements" are as follows:

Residential	60 dBA
Schools, Libraries	60 dBA
Commercial (office, retail)	65 dBA
Commercial (industrial, manufacturing)	70 dBA

Site-Specific Standards and Methods

The *Alameda General Plan* polices include:

- During project operation, an increase in noise exposure of four dBA or more would exceed normally acceptable noise levels for the affected land use, as indicated in Table 8-1 of the Health and Safety Element. An increase of six

**TABLE 12-15: HARBOR BAY:
MODELED TRAFFIC NOISE NEAR SELECTED ROADWAYS**

Roadway Segment	Adjacent Land Use	Ldn (dBA)				Relationship with Compatibility Criteria ²		
		Existing	Future Baseline (2010)	Future w/LRDP (2010)	Applicable Standard ¹ (dBA)	Meets Criteria	Meets Criteria or Would Not Exceed 3 dBA Increment	
						Existing	Future Baseline	Future w/LRDP
High E of Lincoln	Residential; Retail	69	70	71	60	No	Yes	Yes
Fernside E of Central	Residential	69	72	73	60	No	Yes	Yes
Island Drive	Residential	74	74	74	60	No	Yes	Yes
Harbor Bay Parkway	Commercial/Office	74	74	75	65	No	Yes	Yes
Doolittle S of Harbor Bay	Commercial/Office	75	76	76	65	No	Yes	Yes
Doolittle S of Hegenberger	Commercial/Office	73	76	76	65	No	Yes	Yes
Hegenberger W of I-880	Commercial/Office	74	76	76	65	No	Yes	Yes

Notes:

- Noise exposure standard taken from the *City of Alameda General Plan*. Noise standard entries are the highest levels considered "satisfactory, with no special noise insulation requirements" for the most noise-sensitive land use in the roadway corridor.
- Compatibility Criteria:
Existing: Existing Ldn is within the range defined as "satisfactory with no special noise insulation requirements."
Future: Future conditions without LRDP is within compatibility criteria, or would not increase noise levels already above criteria by more than 3 dBA.
Future Baseline: Future conditions with LRDP is within compatibility criteria, or would not increase noise levels already above criteria by more than 3 dBA.

Source: EIP Associates, March 1996

dBA or more would be significant under any exposure circumstances, due to the potential for adverse community response.

b. Impacts and Mitigation Measures

Impact 12E3-1. Traffic Noise (Project and Cumulative/Less Than Significant). Traffic generated by the Major New Site, and by other projects expected to build out by the year 2010, would not have a significant adverse noise impact on land uses in the City of Alameda.

Future noise levels were modeled at the closest characteristic land uses along seven arterial roadway segments and in the vicinity of the Major New Site at Harbor Bay as shown in Table 12-15. Project and other cumulative traffic would not increase noise levels by more than four dBA or more along any of the roadways modeled, this would be below the four dBA City of Alameda criteria, and would not be a discernable noise effect.

Mitigation Measure 12E3-1. (Less Than Significant). None required.

Impact 12E3-2. Aircraft Noise (Project/Significant). Noise from aircraft approaching and departing Metropolitan Oakland International Airport could have an adverse impact on occupants of the Major New Site.

The Major New Site is currently within, and is expected to remain within, the 65 dBA CNEL aircraft noise contour. On-site uses would not include clinical activities, but would be devoted to instructional, research and administrative uses. Aircraft noise could exceed the compatibility standards for educational uses, but would be compatible with other proposed UCSF uses at the Major New Site.

Mitigation Measure 12E3-2. (Less Than Significant). Buildings at the Major New Site at Harbor Bay would include construction features, such as insulation or double-paned windows, to insure adequate interior noise levels for instructional activities. This would avoid a significant impact.

4. MISSION BAY

a. Site-Specific Setting

Major Noise Sources

The most significant source of noise in the area of the Major New Site at Mission Bay is vehicular traffic on the roadway network, including Townsend Street, I-280, 16th Street, Mariposa Street and Third Street. In the vicinity of the Major New Site at Mission Bay, the area adjoining Townsend Street and Seventh Street is affected by CalTrain trains arriving and

departing from the Fourth and Townsend station. Industrial/manufacturing facilities located within the Mission Bay area also contribute to the noise environment in their immediate vicinity.

Sensitive Receptors

The Mission Bay area contains industrial, manufacturing and commercial land uses, and vacant land. Residents are located in the houseboats on China Basin Channel. There are no other existing noise receptors in Mission Bay.

Several street segments that would carry traffic generated at the Major New Site pass through residential areas that surround Mission Bay including: Mariposa Street west of I-280, Third Street south of Folsom Street and Fourth Street south of Howard Street. The approved Mission Bay Plan provides for substantial residential uses, especially along Third Street.

Existing Noise Levels

Typical daytime noise levels were monitored to establish existing baseline conditions at Mission Bay. Noise levels were monitored 80 feet from the centerline of Third Street north of 16th Street as a typical location in Mission Bay near major streets. Third Street traffic was the dominant noise source. A concrete batch plant located about 400 feet to the north generated a steady background level of about 60 dBA. The average noise level during the mid-afternoon was 67 dBA.

Existing L_{dn} levels were calculated along eight arterial roadway segments (at a 50-foot setback from the center line) in the Mission Bay area and vicinity. As shown in Table 12-16, the L_{dn} levels along the arterial roadway segments range from the high 60s to the low 70s dBA.

The noise exposure criteria established by the *San Francisco Master Plan* are a function of land use. The maximum L_{dn} considered "satisfactory, with no special noise insulation requirements" are as follows:

Residential	60 dBA
Educational (classrooms, libraries)	65 dBA
Commercial (office, retail)	70 dBA
Commercial (industrial, manufacturing)	77 dBA

By those criteria, the existing noise environments along most of the roadways are "conditionally acceptable" for the specific land uses they contain.

Site-Specific Standards and Methods

Refer to Site-Specific Standards and Methods, Brisbane Baylands/Executive Park, Subsection 2 of this chapter, for information on the San Francisco Noise Ordinance.

**TABLE 12-16: MISSION BAY:
MODELED TRAFFIC NOISE NEAR SELECTED ROADWAYS**

Roadway Segment	Adjacent Land Use	Ldn (dBA)				Relationship with Compatibility Criteria ²		
		Existing	Future Baseline (2010)	Future w/LRDP (2010)	Applicable Standard ¹ (dBA)	Meets Criteria	Meets Criteria or would Not exceed 3 dBA Increment	
						Existing	Future Baseline	Future w/LRDP
3rd S of 4th	Vacant; 2nd story Residential N of 23rd; proposed future Residential	73	68	70	60	No	Yes	Yes
3rd S of Folsom	Commercial/Retail at street level; Residential 2nd story & up	72	74	74	60	No	Yes	Yes
4th S of Mission Bridge	Commercial/Industrial or Vacant; proposed future Residential	71	65	66	60	No	Yes	Yes
4th S of Howard	Commercial/Retail at street level; Residential 2nd story & up	73	73	73	60	No	Yes	Yes
Bryant W of 2nd	Commercial/Retail at street level; Possible 2nd story live/work	70	70	70	60	No	Yes	Yes
Harrison W of 2nd	Commercial/Office	71	68	69	70	No	Yes	Yes
Chavez W of Folsom	Residential	74	73	73	60	No	Yes	Yes
Mariposa W of I-280	Residential	68	69	69	60	No	Yes	Yes

Notes:

- Noise exposure standard is the *City and County of San Francisco Master Plan*, Environmental Protection Element, Land Use Compatibility Chart for Community Noise. Noise standard entries are the highest levels considered "satisfactory, with no special noise insulation requirements" for the most noise-sensitive land use in the roadway corridor.
- Compatibility Criteria:
 Existing: Existing Ldn is within the range defined as "satisfactory with no special noise insulation requirements."
 Future: Future conditions without LRDP is within compatibility criteria, or would not increase noise levels already above criteria by more than 3 dBA.
 Future Baseline: Future conditions with LRDP is within compatibility criteria, or would not increase noise levels already above criteria by more than 3 dBA.

Source: EIP Associates, March 1996

b. Impacts and Mitigation Measures

Impact 12E4-1. Traffic Noise (Project/Less Than Significant). Traffic generated by the Major New Site would have an adverse noise impact on future residential uses along Third Street that are planned as part of the Mission Bay Plan.

Existing and future noise levels were modeled at the closest characteristic land uses along eight arterial roadway segments in the vicinity of the Major New Site at Mission Bay. Existing noise levels exceed the “satisfactory” level for residential uses in the city’s Environmental Protection Element along all roadway segments. This could expose residential uses planned in Mission Bay along Third Street to elevated noise levels. The Mission Bay Plan requirement that these residential units be designed and built in accordance with State Title 24 indoor noise standards would avoid significant adverse noise impacts.

Traffic noise levels within Mission Bay would be expected to meet compatibility criteria for commercial (compare) uses.

Mitigation Measure 12E4-1. (Less Than Significant). None required.

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1. Federal Transit Administration *Transit Noise and Vibration Impact Assessment*, DOT-T-95-16, April 1995, Table 9-2, Page 9-4.
 2. San Mateo County, Planning & Building Division, *Quarterly Noise Report*, Fourth Quarter 1993.
 3. California Department of Health Services and Governor's Office of Planning and Research, *Guidelines for the Preparation and Content of the Noise Element of the General Plan*, 1988.
 4. Letter from Port of Oakland to University of California San Francisco Office of Campus Planning, February 13, 1996.

F. HAZARDOUS MATERIALS

This section of the EIR identifies the Development Scenario and Site-Specific impacts of hazardous materials use and existing hazardous waste at a Major New Site at Brisbane Baylands/Executive Park, Harbor Bay, or Mission Bay. Those impacts related to potential exposure of construction workers to existing on-site contamination would occur as a result of any development at the Major New Sites, regardless of project sponsor, and are reviewed in the Site-Specific subsections of this Section. Hazardous materials related to UCSF uses would be specific to the actual biomedical research activities conducted at the time a Major New Site were developed. It is assumed that quantities of hazardous materials used and disposed of annually at a Major New Site would be proportional to current annual volumes at Parnassus Heights. Chemical and Biohazard use is therefore scaled to the Major New Site. Estimates of radioactive wastes conservatively include quantities used by Moffitt/Long Hospitals, a use not proposed at the Major New Site. A discussion of the regulatory background of hazardous material management, UCSF uses of hazardous materials, and UCSF's compliance record is presented in Chapter 3, Section F.

1. DEVELOPMENT SCENARIO

Impact 12F1-1. Increase in Hazardous Material Use (Project/Less Than Significant). 1996 LRDP activities at the Major New Site would involve the use and storage of hazardous chemical, radioactive, and biohazardous materials and research animals, which could present health or safety risks for Major New Site occupants or the community.

Development of biomedical research uses at the Major New Site would increase the amount of hazardous material used in the vicinity of the Major New Site. This would expose more people to potential hazards and increase the potential health and safety risks in the area. A neighborhood clinic could be developed at the Major New Site under the 1996 LRDP, and that use would generate some hazardous material as well.

Hazardous materials include hazardous chemicals, radioactive materials and biohazardous materials. A discussion on the general effects of use of the typical range of hazardous chemical, radioactive and biohazardous materials is presented in Appendix 5 to this EIR.

It is difficult to predict with certainty the quantities of hazardous materials that would be used in the future for research uses at a Major New Site because of uncertainties regarding exact future activities and potential changes in research activities and materials. However, the quantities of materials that are currently used for existing research activities at Parnassus Heights can be used to estimate the possible range and quantities of materials which would be used at the Major New Site. Based on gsf comparisons, research operations at the Major New Site could involve annual use of approximately 42,200 gallons of liquid chemicals, 235,000 pounds of solid chemicals and 122,000 cubic feet of compressed gases, many of which would not be hazardous.¹ A typical range of solid, liquid and gaseous chemicals that could potentially be used at the Major New Site is presented in Appendix 5 to this EIR.

The research laboratories at the Major New Site would use radioactive materials, permitted through a Radioactive Materials license issued by the Radiologic Health Branch (RHB) of the Department of Health Services. The radionuclides that would be expected to be used include phosphorous-32, sulfur-35, carbon-14, hydrogen-3 and iodine-125. The Radioactive Materials license would limit the amount of radioactivity that could be present at the Major New Site at any one time.

Many different types of biohazardous materials would also be used for research activities at the Major New Site. Biohazardous materials used in research activities are generally living organisms or are associated with living organisms which continually grow, multiply and die, so they are difficult to quantify.

To address the risks to public safety and the environment that would be posed by use of hazardous materials at the Major New Site, UCSF would be required to comply with health and safety and environmental protection laws and regulations. UCSF's Office of Environmental Health & Safety (EH&S) would establish a satellite office at the Major New Site to perform the responsibilities it currently performs at UCSF's existing sites where hazardous materials are used. Existing UCSF policies and procedures intended to protect the health and safety of UCSF employees would be followed at the Major New Site.

UCSF would minimize waste volumes through a variety of systems, practices and technologies for recycling, processing and decaying waste. EH&S would implement feasible measures in its *Hazardous Waste Source Reduction and Management Review* plan. This is a hazardous waste reduction plan required by the state through SB14. New UCSF buildings at the Major New Site would have state-of-the-art laboratory safety features for managing potentially hazardous material to protect the staff and the surrounding community. UCSF would be required to extend community "Right-to-Know" and Business Plan requirements to the Major New Site for the purpose of meeting data reporting requirements of the regulatory agencies. The health and safety procedures implemented to protect the UCSF population would also protect the community in the vicinity of the Major New Site.

Mitigation Measure 12F1-1. (Less Than Significant). None required.

Impact 12F1-2. Transportation of Hazardous Materials (Project/Less Than Significant). Hazardous materials transported to, from and among UCSF facilities as a result of development of biomedical research uses at the Major New Site would expose people to potential health risks in the event of an accidental release.

New hazardous materials use at a Major New Site would increase hazardous materials transport in the area of the Major New Site. Inbound transport and transport among UCSF sites of hazardous materials would be carried out in accordance with UCSF policies and procedures. Hazardous materials leaving a UCSF site would meet US Department of Transportation requirements. Although the transportation of hazardous materials has associated risks of spills or leaks, these risks could be reduced to less than significant levels through appropriate management of transported wastes in compliance with applicable laws and regulations found in the Code of Federal Regulations, Title 49.

Inbound and outbound hazardous materials shipments would be packaged according to US Department of Transportation and US Postal Service specifications; therefore, there would be minimal risk associated with accidents involving hazardous materials in transport. Transport of hazardous material within the Major New Site would be conducted in secondary containment to minimize the potential effects of accidental breakage or leaking during transport. Generally, the quantities of hazardous materials transported within the Major New Site, e.g., from storage to a laboratory bench, at any given time would be relatively small, minimizing potential environmental effects.

The Major New Site could also increase the quantities of hazardous materials transported between UCSF locations, thereby increasing the potential for an accident during such transport. Because of the small amounts of hazardous materials involved and UCSF's expected compliance with applicable transport regulations, the increased transport of hazardous materials due to the proposed Major New Site would not create a substantial health or safety hazard due to risk of accidents.

Mitigation Measure 12F1-2. (Less Than Significant). None required.

Impact 12F1-3. Increase in Generation of Hazardous Wastes and Additional Load on Hazardous Waste Management Facilities (Project/ Significant). Biomedical research uses at the Major New Site would increase hazardous waste generation and disposal of chemical, radioactive and biohazardous waste which could burden local and regional waste management capabilities.

Hazardous wastes are generated whenever hazardous materials are used. Hazardous waste generated at the Major New Site would include hazardous chemical waste, radioactive waste and biohazardous waste.

Hazardous Chemical Waste

General types of hazardous chemical wastes include spent solvents from laboratories and the physical plant, discarded laboratory reagents and reaction products, unused paints and oils, and contaminated materials such as gloves and containers. The research facilities at the Major New Site would generate approximately 125,000 pounds of hazardous chemical waste per year.²

Hazardous chemical wastes generated by UCSF research activities at the Major New Site would not be expected to result in any direct public exposures (see discussion under Impact 12F1-2 for exposure due to transportation of hazardous waste). The extent that students and workers are exposed to hazardous chemical waste is related to the training they receive, how conscientiously they follow safety procedures, how well engineering controls are maintained and operated, and the extent that compliance is supervised and enforced.

Flammable wastes (mostly solvents), corrosives (acids and bases), certain oils, poisons, heavy metals and oxidizers are shipped off UCSF sites for recycling, treatment or disposal. UCSF has prepared guidelines for proper disposal of hazardous chemical wastes based on regulations

established by the US Environmental Protection Agency (EPA), the Occupational Safety and Health Agency (OSHA) and the California Department of Toxic Substances Control (DTSC). To facilitate safe management, the guidelines require that the hazardous wastes be sorted into groups with similar or closely related properties. The guidelines also require that the hazardous chemical wastes be packaged and labeled properly, which includes placing them in appropriately sealed containers, segregating incompatible materials and identifying all components with approximate concentrations. The hazardous chemical wastes are further sorted by the handling methods employed, storage locations at the site, and the ultimate destination of the materials. Once packed for disposal, hazardous chemical wastes are further categorized according to their off-site disposal methods.

Radioactive Waste

Research laboratories at the Major New Site would be expected to generate small amounts of solid and liquid low-level radioactive waste. A total of approximately 14 curies of radioactive waste would be generated at the Major New Site on an annual basis.³ This would include approximately two curies of long-lived radioactive waste (hydrogen-3 and carbon-14). This is a conservative estimate as the quantities are based upon the annual radioactive waste generated by UCSF research laboratories as well as the medical center at Parnassus Heights, and the Major New Site would not include a medical center. Radioactive waste generated at the Major New Site, if not adequately managed, could pose health or safety threats analogous to those mentioned for radioactive materials use.

Radioactive waste would be segregated, sealed and labeled by the generating researcher who would call UCSF EH&S for pickup. Short-lived low-level radioactive waste with a 90-day or less half-life would be held on-site for decay for a period of not less than ten times the material's half life, then disposed of as regular waste. Long-lived radioactive waste would be disposed of at a low-level radioactive waste landfill, if available. Long-term, legal disposal of low-level long-lived radioactive waste is not readily available or guaranteed for California's generators, as discussed in Chapter 4, Section F (see discussion under Impact 4F-3 for generation of low-level radioactive waste). In the interim, UCSF may have to store such wastes generated at the Major New Site on-site indefinitely and would be required to increase its radioactivity possession limits accordingly. Depending on the duration of the disposal limitations, the accumulated quantity of radioactive waste at a Major New Site could increase the potential for improper handling and storage, and could eventually cause health risk hazards.

Biohazardous Waste

Research laboratories and animal care activities would produce approximately 90,000 pounds of biohazardous wastes at a Major New Site per year.⁴ Most laboratory tissues, fluids and cultures are considered potentially infectious and therefore are categorized as biohazardous waste. Potentially infectious animal care wastes can include animal excreta, bedding and uneaten food, cage washing solutions, animal carcasses and tissues, workers' disposable protective clothing and sharp objects (including needles, scalpels and broken glass).

At the Major New Site, research-generated biohazardous waste would be placed in a biohazard labeled bag and autoclaved, a procedure rendering the waste non-hazardous by applying steam under high pressure. Biohazardous waste at all UCSF sites is rendered non-hazardous prior to disposal, and existing health and safety practices minimize the potential for adverse health effects prior to disposal. These practices would be extended to the Major New Site.

Mitigation Measure 12F1-3. (Less Than Significant). UCSF would implement hazardous waste handling, minimization and disposal measures at the Major New Site consistent with safety requirements and applicable laws and regulations.

- UCSF would extend its hazardous waste minimization plan to include the Major New Site.
- UCSF would implement the operational controls required to comply with laws and regulations, including, but not limited to, monthly safety and compliance audits and training of staff at the Major New Site. This would 1) allow efficient processing of wastes for shipment to treatment facilities or disposal, reducing the time hazardous wastes are at a Major New Site, and 2) ensure that safety controls such as OSHA training, correct practices and safety equipment are in place.
- UCSF would implement procedures to minimize increases in the long-lived radioactive waste generation. According to the California Department of Health Services Radiologic Health Branch (RHB), California radioactive materials licensees should: 1) minimize the amount of low-level radioactive waste in possession and avoid accumulating waste that cannot be disposed of at this time; 2) segregate for disposing radioactive waste that are not subject to Southwestern Low-level Radioactive Waste Disposal Compact regulations; 3) segregate waste that can be disposed of or reduced in volume by approved treatment methods; 4) segregate short-lived radioactive waste for decay; 5) consider recycling radioactive materials; 6) consider extended on-site storage of any remaining low-level radioactive waste; and 7) consider non-radioactive substitutes.

Impact 12F1-4. Contribution to Load on Hazardous Waste Management Facilities (Cumulative/Significant and Unavoidable). Development of a Major New Site in conjunction with other cumulative development that generates hazardous waste could place an additional load on hazardous waste management facilities.

Section 104(c)(9) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires that states provide to the EPA a hazardous waste management Capacity Assurance Plan (CAP). The legislation intends to ensure that the burden of hazardous waste disposal is shared appropriately among the states.

The current version of California's CAP was prepared in 1993, and provides data on existing and projected hazardous waste generation and capacity, state waste minimization activities and plans for meeting the capacity shortfall for several waste management categories (metals

recovery, incineration of liquids, solids and sludges and energy recovery). The data indicate the following:

- Despite state hazardous waste minimization planning requirements, the amount of hazardous waste shipped outside California for recycling, treatment or the amount of disposal has remained relatively stable between 1984 and 1993 at about two million tons per year, although the composition of the hazardous waste has changed.
- There continues to be a statewide shortfall in incineration capacity for hazardous wastes.
- The reliance on export of hazardous waste is steadily increasing, although import (generally to hazardous waste recycling facilities) is increasing somewhat as well.

The state lacks capacity to treat several types of hazardous waste; therefore, treatment requirements have been postponed several times since 1990. The California land ban (banning many types of hazardous waste from land disposal) was scheduled for full implementation in 1995. Recently adopted legislation (SB 1574) postpones full implementation of the land ban until the availability issue of the treatment capacity for some types of wastes within the state is resolved.

Generators of long-lived radioactive waste cannot dispose of it until a disposal facility is approved and constructed in California. Until then, generators are required to arrange storage for this waste indefinitely or ship it to South Carolina, where the only available disposal facility exists. The facility in South Carolina is licensed until the year 2000. The potential for adverse environmental effects of storing all of the long-lived radioactive waste generated by UCSF uses at a Major New Site and cumulative development in California would increase as the duration of the storage increases and available out-of-state disposal facilities become unavailable.

Hazardous waste generators in California continue to rely on out-of-state treatment and disposal facilities to meet hazardous waste disposal needs. Long-term hazardous waste management capabilities that meet applicable laws and regulations are not currently available and may not be available in the future. Cumulative hazardous waste disposal impacts, therefore, are considered potentially significant.

Mitigation Measure 12F1-4. (Significant and Unavoidable). Implementation of the measures in Mitigation Measure 12F1-3 would reduce the magnitude of this impact. However, the actions of UCSF alone cannot mitigate this impact, and other government entities would need to take steps to mitigate this impact. For example, local governments could implement and facilitate hazardous waste minimization programs, states could set mandatory waste reduction targets, and state or federal governments could operate treatment or disposal facilities. However, the feasibility and implementation of such measures cannot be guaranteed by UCSF because they fall within the jurisdiction of others to enforce and monitor.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Brisbane Baylands

Site History

The Brisbane Baylands area was created by filling tidelands of San Francisco Bay. South Bayshore Boulevard was originally the easternmost extent of land in the Brisbane Baylands vicinity. The bay was filled concurrent with disposal of debris from the San Francisco earthquake of 1906 and the construction of the Southern Pacific Railroad tracks. The western section of the parcel, located between the Southern Pacific/Caldron tracks and South Bayshore Boulevard, was the site of a Southern Pacific Railyard Maintenance Facility from 1914 to 1960. The eastern portion of the Brisbane Baylands was a sanitary landfill for the City and County of San Francisco from 1933 to 1967.

Since 1990, state regulatory agencies have issued a number of orders to characterize and begin remediation of the contamination on the Brisbane Baylands parcel. A Remedial Action Plan was prepared for the railyard portion of the Brisbane Baylands parcel and a Solid Waste Assessment Report was approved for closure of the landfill portion.⁵ The major railyard groundwater contamination is in the northern area of the former railyard adjacent to a lithographic company, and the major soil contamination is in the southwestern section of the Brisbane Baylands parcel near the former disposal area used during oil tank farm and railroad operations. Cleanup of contaminated groundwater in the northern section involves a pump-and-treat system. The pump-and-treat system, started in October 1994, is in operation under a 30-year maintenance agreement between the DTSC and the property owner.⁶ The system is primarily being used for controlling the migration of contaminated groundwater. Cleanup of soil contamination in the southern portion of the Brisbane Baylands parcel will be performed under the oversight of the Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Quality Control Board) and will involve further site characterization to determine the extent and type of contamination followed by preparation and implementation of a Remedial Action Plan by the current property owner.⁷ Closure of the landfill will involve importing additional soil to complete a landfill cap and grading to ensure no standing water will be able to percolate into the landfill. The closure is expected to be completed in approximately two years.

Potential Hazards

Different areas of the Brisbane Baylands also are affected by subsurface soil and water contamination from organic and inorganic components related to past and continuing railroad maintenance operations, the tank farm and the closed landfill. These include volatile organic compounds and heavy metals. Not all soil and water contamination areas of the Brisbane Baylands parcel have been completely characterized. All characterization and remediation activities at Brisbane Baylands are under the jurisdiction of the Regional Water Quality Control Board and the DTSC. The potential contaminants at the site include heavy metals, diesel fuel

and volatile and semi-volatile hydrocarbons. These contaminants are known to cause various health hazards if human exposure occurs. A list of contaminants that could be present at the Brisbane Baylands site and their potential health effects is included in Appendix 5 to this EIR.

County of San Mateo

The Hazardous Materials Department of San Mateo County has had regulatory authority (since 1986) over underground storage tanks located within the county, pursuant to County Hazardous Materials Program and State Proposition 65. The San Mateo County Department of Fire Services has the responsibility for above-ground hazardous materials storage and compliance with business plans requirements which include an inventory of hazardous substances used by business located in San Mateo County. A Major New Site at Brisbane Baylands would be subject to these regulations.

Executive Park

Site History

Prior to the development of the three office buildings at Executive Park, the site was primarily used as open space. Due to its location on the shoreline of the San Francisco Bay and historical uses known to have occurred in adjacent areas, the Executive Park area could have supported some past shipbreaking uses. However, it is not expected that these activities would have generated hazardous wastes. In addition, because the southern portion of Executive Park is comprised of artificial fill, it is possible that some hazardous materials could be present. However, because the Major New Site would develop upland northern areas of Executive Park, artificial fill areas of Executive Park are not considered in the following discussion.

Potential Hazards

Areas outside the Executive Park site could potentially introduce contaminants into the Executive Park parcel due to migration via air and groundwater pathways. Known contamination exists in the Brisbane Baylands portion of the Major New Site west of Executive Park. Information on soil and groundwater contamination in the Southern Pacific Railyard is presented in the Brisbane Baylands discussion above.

The sanitary fill transfer facility and the household hazardous waste collection facility, operated by the Sanitary Fill Company, is 800 feet southwest of Executive Park, across US 101. There are known areas of solid and groundwater contamination at the sanitary fill transfer station. It is unlikely, however, that existing conditions or hazards from the operation of the sanitary fill transfer facility or household hazard waste collection facility could affect surrounding areas including Executive Park. In addition, the Sanitary Fill Company will remediate known areas of soil and groundwater contamination under the guidance of the San Mateo County Department of Environmental Health. The extensive coverage of the transfer facility with impervious

surfaces limits infiltration of spills or leaks to a minimum. Surface runoff is routed to drain catch basins that empty into the San Francisco combined stormwater/sanitary sewer system.⁸

Impact 12F2-1. Worker Exposure to Contaminated Soil or Water (Construction/Significant). If pre-construction remediation of contaminated soil or water has not been completed, construction activities at the Brisbane Baylands portion of a Major New Site could expose construction workers to contaminated soil or groundwater.

As described in the Site-Specific Setting above, several locations at the Brisbane Baylands parcel have or are suspected to have soil and groundwater contamination due to past uses. Construction activities at Executive Park would not be expected to disturb areas with soil or water contamination and are therefore not discussed further in this section.

Contaminated soil or groundwater could be encountered during construction activities at Brisbane Baylands if pre-construction remediation of contaminated soil or water has not been completed. Exposure to hazardous materials in contaminated soil or groundwater could cause various short-term or long-term health effects in persons exposed. During construction activities at the Major New Site, work at locations that are contaminated with hazardous materials could pose adverse health and safety risks for workers or the public if the contaminants are not identified and properly managed.

Exposure to contaminants also could occur if the contaminants migrated from the contaminated zone to surrounding areas either before or after the surrounding areas were developed, or if contaminated zones were disturbed by future development or remediation work at the contaminated location.

As discussed in the Site-Specific Setting, the site characterization of Brisbane Baylands is not yet complete. If contamination were detected in areas to be disturbed by construction activities, in areas directly adjacent to construction sites or in areas open to public access, the current property owner would be required to remediate the contaminated areas under federal CERCLA requirements. Remediation would include treatment of contaminated soils in a manner that would render them nonhazardous in order to protect public health and safety, and proper treatment and/or disposal of such soils.

Site remediation measures could also have adverse impacts if proper procedures were not followed or if accidents were to occur. During site remediation, workers and possibly the nearby public could be exposed to chemical compounds in soils, soil gases or groundwater. The public and the environment could be exposed to airborne chemical compounds migrating from a site under remediation. Accidents during transportation of contaminated soils or groundwater could lead to exposure of the public and the environment to the chemical compounds.

As described in Chapter 3, Section F, potential adverse impacts of remediation would be mitigated, in part, by legally required safety and hazardous waste handling and transportation precautions. For hazardous waste workers, federal OSHA regulations mandate an initial 40-hour training course, subsequent annual training review and site-specific training as required.

Environmental cleanup at the Brisbane Baylands parcel would be beneficial over the long term. Remediation of contaminated sites would eliminate the health threats posed by hazardous wastes and prevent workers and the public from encountering such materials in the event of any future excavation at the site. Removal of the toxic materials would also be beneficial in eliminating a potential local source of groundwater contamination. Remediation would be the responsibility of the current property owner.

Mitigation Measure 12F2-1. (Less Than Significant). Development of the Brisbane Baylands portion of a Major New Site would include implementation of the following mitigation measures by the current land owner to reduce soil and water contamination hazards to a less than significant level. *Implementation of these measures would be within the jurisdiction or responsibility of persons or agencies other than UCSF.*

- A risk assessment for potential contaminants would be completed. The risk assessment would identify the major pathways of exposure and discuss measures to limit transmission via each pathway. It would also describe the reductions in concentration, total amount or lateral spread of the wastes necessary to reduce the public health risk to a level of insignificance.
- An in-depth site investigation at the Major New Site would characterize fully the soil and groundwater conditions. The site investigations would include collecting data on surface soils, subsurface soils, groundwater and monitoring wells, and soil gas. The investigations would be guided by a comprehensive sampling plan describing the sampling pattern and locations, media to be sampled, methods, equipment, personnel, documentation and schedule.
- Identification of hazardous wastes on the site would require notification to the County Department of Public Health, the DTSC and the Regional Water Quality Control Board.
- A Remedial Action Plan would be prepared and implemented. Remediation of on-site contamination would be carried out under the oversight of DTSC or the Regional Water Quality Control Board. The DTSC or the Regional Water Quality Control Board would certify satisfactory completion of remediation prior to issuance of building permits on the affected properties.

3. HARBOR BAY

a. Site-Specific Setting

Site History

Fill

Based on historical aerial photographs, the Harbor Bay Business Park, which is part of the Harbor Bay Isle planned development, was under water until the 1950s. By the late 1950s, the present-day shoreline or the dike around the Harbor Bay Business Park was under construction.

The perimeter dikes were constructed of either fine silty sands or soft clays generated from the dredging operations. Some short segments of the perimeter dike were also composed of materials transported from a nearby quarry. Portions of the dike along Catalina Avenue were formed with concrete rubble and wood piles. Filling began in 1966 and was completed by 1969. The interior fill for the Harbor Bay Business Park was obtained by dredging from a borrow area, approximately 0.5 to 1.5 miles directly west of the westernmost terminus of Harbor Bay Isle, in an open water portion of the bay. The material in the borrow area consists primarily of sandy soils with a minimum amount of Bay Mud. Contaminants are not expected in the fill material used at Harbor Bay.

Soil and Groundwater Contamination

A 400-gallon underground gasoline storage tank was discovered in 1987 about 800 feet northeast of the boundary of the Harbor Bay Business Park; it was removed at that time. Soil samples analyzed during tank removal indicated contamination at the site. The contaminated soil was excavated and removed. The most recent sampling indicated levels of contaminants at below laboratory detection limits.⁹ Neither the Regional Water Quality Control Board nor any other regulatory agencies has requested further investigation or groundwater remediation in relation to the tank leak at this site.¹⁰

Potential Hazards

The only known currently existing underground storage tanks in the vicinity of the Major New Site at Harbor Bay are those associated with the British Petroleum gasoline station located on Mecartney Road adjacent to Harbor Bay Landing Shopping Center. No leaks associated with these tanks have been reported to local regulatory agencies. Three businesses listed as handlers and/or generators of hazardous waste by US EPA are located in the vicinity of the Major New Site at Harbor Bay. All three businesses are within the developed portions of the Harbor Bay Business Park. None of the three listed firms appeared on any of the regulatory agency lists as having any documented releases or spills.¹¹ According to the Alameda County Department of Environmental Health there have been no significant releases of hazardous material in the immediate vicinity of the Major New Site.¹²

County of Alameda

Facilities operating in Alameda are required to follow the Alameda County Hazardous Waste Management Plan. Alameda County's Health Services is the legal lead agency for enforcing hazardous materials transport regulations. The Alameda Fire Department has first-response responsibility to hazardous and material incidents.

b. Impacts and Mitigation Measures

Impact 12F3-1. Construction Activities at the Major New Site (Construction/ Less Than Significant). Construction activities at the Major New Site at Harbor Bay could expose construction workers to contaminated soil or groundwater.

Based upon the information presented above it is unlikely that there are undiscovered conditions at the Major New Site at Harbor Bay which could expose construction workers to contaminated soil. If such materials were later identified, appropriate construction measures, including preparation and implementation of a remedial action plan under the oversight of regulatory agencies, would avoid exposure of workers to such materials.

Mitigation Measure 12F3-1. (Less Than Significant). None required.

4. MISSION BAY

a. Site-Specific Setting

Site History

No site investigations have been conducted to confirm the presence or absence of soil and groundwater contamination at Mission Bay.¹³ However, the site history and existing industrial and rail use strongly suggest the possibility of hazardous waste contamination throughout Mission Bay. The probability of contamination is higher in some portions of the site than in others.

Mission Bay was gradually filled in the late 1800s and early 1900s. Sources of fill included local sand hills, trash from the city dump on the northern shoreline of Mission Bay, and rubble and debris from the 1906 earthquake and fire.

Use of underground storage tanks in the Mission Bay area has been pervasive over an extended period. Because of the number of tanks existing or formerly present in the area, and the general tendency for metal tanks without corrosion protection to leak, it is likely that some leakage has occurred. The soils in the area are above average in salt content, the water table is shallow and brackish, and most tanks apparently were not protected against corrosion, so the potential for corrosion of steel tanks, and thus the percentage of leaking tanks, may be higher than average.¹⁴ Because of the predominance of gasoline and oil tanks, potential leakage would be expected to be of petroleum products.

Potential Hazards

The Mission Bay area has been occupied by a large variety of industries over an extended period of time. Industries with potential to produce hazardous waste contamination or deposits included petroleum blending and storage, paint products, glass manufacturing, chemical manufacturing, shipyards, steel mills, asbestos storage, railyards, lumber yards, brick and hay

storage, tanneries, warehouses, planing mills, wood products manufacturing, brick manufacturing and gas plants. Some of these industries present at Mission Bay were so limited in extent or in tenure such that no detailed analysis of their potential to produce hazardous wastes contamination or deposits is possible.

The most prevalent surface indications of potential contamination found in the Mission Bay area are:

- soil staining by petroleum products;
- lack of weeds or other vegetation; and
- piles of trash, barrels and other waste materials, such as broken asphalt paving and lumber.

The shallow subsurface zone of the Mission Bay area contained approximately 49 known existing and former tanks. Most of the underground storage tanks have been removed. The contents of the underground storage tanks are known to be either gasoline, diesel, oil or one of several commercial/industrial chemicals.

Potential hazards at Mission Bay are based upon information on industrial use of hazardous materials at the site.¹⁵ Potential hazardous waste in Mission Bay area may include:

- Alkaline and acid solutions (e.g., lime, nitric acid and sulfuric acid)
- Polycyclic aromatic hydrocarbons (PAHs) (e.g., DDD, DDT and PCBs)
- Petroleum fuel (e.g., gasoline and diesel)
- Wood treatment compounds (WTCs) (e.g., creosote and pentachlorophenol)
- Pesticides (e.g., DDD, DDT, 2 and 4-D)
- Halogenated organics (e.g., DDD, DDT and PCBs)
- Asbestos
- Heavy metal compounds (e.g., compounds of cadmium, chromium and copper)

b. Impacts and Mitigation Measures

Impact 12F4-1. Worker Exposure to Contaminated Soil or Water (Construction/Significant). If pre-construction remediation of contaminated soil or water has not been completed, construction activities at the Major New Site at Mission Bay could expose construction workers to contaminated soil or groundwater.

As described in the Site-Specific Setting, several locations at Mission Bay are suspected to have soil or groundwater contamination due to chemical releases, pesticide use or fuel spills of one

type or another. Other undocumented areas of contamination are likely to be present. If pre-construction remediation of contaminated soil or water at Mission Bay has not been completed, construction activities could expose construction workers to hazardous materials in contaminated soil or groundwater and could cause various short-term or long-term health effects in exposed persons.

Old or abandoned underground storage tanks may be present in the areas to be developed as the Major New Site. The contents of these tanks may be hazardous. A previously unknown tank uncovered or disturbed during excavation, could threaten the health and safety of site workers. A leaking tank could contaminate the groundwater and could also pose a possible explosion hazard.

As discussed in the Site-Specific Setting, a site characterization of Mission Bay has not occurred. If contamination were detected during construction activities, the contaminated areas would have to be remediated. Remediation of contaminated sites would eliminate the health threats posed by hazardous wastes and prevent construction workers and the public from encountering such materials in the event of any future excavation at the site. Removal of the toxic materials would also eliminate a potential local source of groundwater contamination; such removal would be beneficial in the long run. Remediation would be the responsibility of the current property owner.

Mitigation Measure 12F4-1. (Less Than Significant). Development of a Major New Site at Mission Bay would include implementation of the following mitigation measures by the current land owner to reduce soil and water contamination hazards to a less than significant level. *Implementation of these measures would be within the jurisdiction or responsibility of persons or agencies other than UCSF.*

- A risk assessment for potential contaminants would be completed. The risk assessment would identify the major pathways of exposure and discuss measures to limit transmission via each pathway. It would also describe the reductions in concentration, total amount or lateral spread of the wastes necessary to reduce the public health risk to a level of insignificance.
- An in-depth site investigation at the Major New Site would characterize fully the soil and groundwater conditions. The site investigations would include collecting data on surface soils, subsurface soils, groundwater and monitoring wells, and soil gas. The investigations would be guided by a comprehensive sampling plan describing the sampling pattern and locations, media to be sampled, methods, equipment, personnel, documentation and schedule.
- Identification of hazardous wastes on the site would require notification to the County Department of Public Health, the DTSC and the Regional Water Quality Control Board.
- A Remedial Action Plan would be prepared and implemented. Remediation of on-site contamination would be carried out under the oversight of DTSC or the Regional Water Quality Control Board. The DTSC or the Regional Water

Quality Control Board would certify satisfactory completion of remediation prior to issuance of building permits on the affected properties.

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1. The annual chemical use at a Major New Site was estimated on the basis of annual chemical use at Parnassus Heights as reported in the *Revised Laurel Heights Plan Final Environmental Impact Report*, V.II, June 5, 1995. The quantity was estimated by multiplying the amount of chemical use by the ratio between the proposed Major New Site research space and research space at Parnassus Heights.
 2. John Shaver, Environmental Monitoring, Environmental Health & Safety, University of California San Francisco, telephone conversation with Michelle Schaefer, UCSF, March 5, 1996 and March 6, 1996.
 3. John Shaver, Environmental Monitoring, Environmental Health & Safety, University of California San Francisco, telephone conversation with Michelle Schaefer, UCSF, March 5, 1996 and March 6, 1996.
 4. John Shaver, Environmental Monitoring, Environmental Health & Safety, University of California San Francisco, telephone conversation with Michelle Schaefer, UCSF, March 5, 1996 and March 6, 1996.
 5. The summary of contaminants detected in soil and groundwater at the Brisbane Baylands site is based on review by Science & Engineering Analysis Corporation (SEACOR) of the Levine•Fricke Draft RAP, dated October 16, 1992, and the Kleinfelder Associates SWAT report dated August 10, 1992.
 6. Beth Bufton, Hazardous Substance Scientist, Department of Toxic Substances Control, telephone conversation with EIP Associates, February 14, 1996.
 7. Diane Mims, San Francisco Regional Water Quality Control Board, telephone conversation with EIP Associates, February 14, 1996.
 8. City and County of San Francisco, Department of City Planning, *Sanitary Fill Company Recycling and Solid Waste Systems Plan, Draft Program Environmental Impact Report II*, 1995.
 9. Hallenbeck & Associates, *Preliminary (Phase I) Environmental Site Assessment-Portions of the Harbor Bay Isle Business Park, Alameda, California*, October 18, 1991.
 10. Hallenbeck & Associates, *Preliminary (Phase I) Environmental Site Assessment-Portions of the Harbor Bay Isle Business Park, Alameda, California*, October 18, 1991.
 11. Hallenbeck & Associates, *Preliminary (Phase I) Environmental Site Assessment-Portions of the Harbor Bay Isle Business Park, Alameda, California*, October 18, 1991.
 12. James R. Lott, Hallenbeck & Associates, telephone conversation with Sangeeta Goyal, EIP Associates, May 3, 1995.

13. Vic Pal, Regional Water Quality Control Board San Francisco Bay Region, telephone conversation with EIP Associates, July 6, 1994.
14. City and County of San Francisco, Department of City Planning, *Mission Bay Hazards Mitigation Program*, SCH No. 86070113, August 1990, V.II Appendices, pp. A.3 - A.119.
15. Vic Pal, Regional Water Quality Control Board San Francisco Bay Region, telephone conversation with EIP Associates, July 6, 1994.

G. GEOLOGY AND SEISMICITY

Each of the three potential Major New Sites is near San Francisco Bay, and are at least partially located in former tidal areas that have been filled. As such, they share a number of features which could affect their development: they are nearly flat, close to sea level; and underlain by artificial fill, Bay Mud, alluvial deposits and Franciscan bedrock. These foundation materials and their geo-seismic characteristics have the following implications (potential geo-seismic hazards) for development at each of the Major New Sites:

- surface alteration and disruption of soils;
- severe groundshaking, liquefaction, mud waves and possible tsunami inundation hazards;
- differential and total settlement of compressible fill and Bay Mud; and
- concentration of population in a seismically-hazardous area.

More detail concerning these hazardous conditions is provided in the geo-seismic hazards sections below. The impacts and mitigation measures sections below identify the effects these hazards would have at a Major New Site, and the methods by which they would be avoided or reduced. The standards of significance listed in Chapter 3 Section G of this EIR are used to determine whether an impact would be considered significant, and mitigation measures are applied as appropriate to eliminate the impact or reduce it to a less-than-significant level.

1. DEVELOPMENT SCENARIO

a. Regulatory Context

The University Policy on Seismic Safety, revised in January 1995, requires that all new construction comply with the current seismic provisions of the California Code of Regulations, Title 24, California Building Standards or local seismic requirements, whichever is most stringent. It also requires that provisions be made for adequate anchoring for seismic resistance of nonstructural building elements, and that no construction occur on a known active fault trace (see the Glossary in Appendix 6).¹ Additional, non-structural, seismic safety requirements would be imposed by UCSF if they were not already addressed by the local code requirements. These requirements would include adequate anchoring of interior and exterior building elements, utilities, equipment, fixtures, furnishings and other contents which could be dislodged, fall, overturn, slide or rupture during seismic disturbances. While regulatory compliance would not necessarily avoid or eliminate geologic and seismic impacts associated with the Major New Site, implementing the appropriate building code measures would reduce potentially significant geo-seismic impacts of the Major New Site to a generally acceptable (i.e. less life-threatening) level (see Chapter 3, Section G of this EIR).

b. Geo-Seismic Hazards

The following discussion of the potential for geologic and seismic hazards at a Major New Site applies to each of the potential Major New Sites because 1) the geo-seismic conditions are very similar at each site, 2) site-specific variations and analyses have been reviewed and evaluated for this EIR, and 3) the site-specific variations do not lead to different assessments for each type of impact, or to different mitigation statements for the different sites. Although the actual development designs could differ from site to site because of local variations in subsurface geologic conditions, the performance standard (*i.e.*, the protection of life) would not change. The source documents from which this information is derived are identified in the site-specific portion of this section, and cited in the endnotes. Relevant text is summarized in Appendix 6 of this EIR. The potential geo-seismic hazards for a Major New Site at each potential location considered under the 1996 LRDP can be summarized as follows:

- Because the Major New Site would not be located on an active fault, it would not be subject to surface fault rupture.
- The Major New Site would be exposed to earthquake-related groundshaking strong enough to damage buildings and infrastructure, possibly resulting in loss of life.
- Groundshaking forces could cause soil, fill or underlying Bay Mud at the Major New Site to liquefy, sink, crack or become elastic, thereby damaging structures supported on them.
- Construction at the Major New Site could cause fill and Bay Mud to sink under the weight of the structures.
- Expansive or corrosive soils or fill at the Major New Site could damage structures coming in contact with them.
- Construction at the Major New Site could create wind or water erosion of sandy fill materials during excavation.
- The Major New Site would concentrate population in a seismically hazardous area.
- The Major New Site would be located in an area in which the local jurisdiction (city or county) normally would require site-specific geo-technical studies prior to development to assess hazards and to recommend techniques and procedures for reducing, eliminating or avoiding them. These techniques could include foundation systems (such as pile supports), structural designs (such as cross-bracing) and construction plans (to accommodate erosion, settlement and drainage).

- Because the University Policy on Seismic Safety requires the most stringent seismic code (either state or local, whichever is most stringent) as its guidelines, policies adopted by the local jurisdiction (city or county) could be used to increase seismic safety at the Major New Site.

c. Impacts and Mitigation Measures

Each of the impacts identified below would be considered a potentially significant impact of implementing a Major New Site at one of the proposed locations, were it not addressed by one or more of the policies summarized in Chapter 3, Section G of this EIR and listed in Appendix 6.

As required by the University Policy on Seismic Safety, the Major New Site would include site-specific geotechnical investigation and seismic design reflecting the most stringent state or local standards of construction, and site-specific foundation and structural design to reduce or eliminate ground failure risks. The LRDP development at the Major New Site would include site-specific erosion and sedimentation control plans to reduce or eliminate the risk of unintentional soil transportation and deposition during the construction phase, and an integrated emergency response plan for the operational phase to prevent the Major New Site from overburdening the local emergency response systems.

Implementation of the University Policy on Seismic Safety would reduce potential impacts to a less-than-significant level. It would not be necessary to impose mitigation measures beyond those required by the University Policy on Seismic Safety because it requires the most stringent standard among the local and state building codes. This would be sufficient to reduce potential impacts to a less-than-significant level.

Impact 12G1-1. Seismic Groundshaking (Project/Significant). Buildings and infrastructure at the Major New Site would be subject to violent seismically-induced groundshaking and potential ground failures including subsidence, liquefaction, lateral spreading, differential settlement and landsliding (see Glossary in Appendix 6), during a major earthquake in the San Francisco Bay Area.

Implementation of the University Policy on Seismic Safety, which is included as part of the LRDP, would ensure that people or structures were not exposed to major geologic hazards, such as Intensity IX groundshaking, liquefaction, slope failure or landslides because the most stringent building and design codes would be followed in construction of new buildings and infrastructure at the Major New Site. Implementation of the University Policy on Seismic Safety would reduce the risk from seismic groundshaking and ground failure impacts to a less-than-significant level.

Mitigation Measure 12G1-1. (Less Than Significant). None required.

Impact 12G1-2. Static Ground Failure (Project/Less Than Significant). Buildings and infrastructure at a Major New Site that could be located on loose unengineered fill, or in Bay Mud, would be subject to static ground failures including differential settlement, subsidence, mud waves and landsliding. Corrosive soils in the fill also could weaken the steel or concrete materials of foundations of the structures (see Glossary in Appendix 6).

Implementation of the University Policy on Seismic Safety, which is included as part of the LRDP, would ensure appropriate engineering and design for structures that would be founded on soils that are likely to collapse or subside, or that exhibit expansive characteristics that could damage foundations or structures. Implementation of this policy would reduce the static ground failure impacts to a less-than-significant level.

Mitigation Measure 12G1-2 (Less Than Significant). None required.

Impact 12G1-3. Soil Erosion During Construction (Construction/Less Than Significant). Demolition, excavation and construction activities at a Major New Site have the potential to increase soil erosion and sedimentation by wind or water during these activities.

Development of a Major New Site would involve possible demolition activities, excavation for utilities and possibly for building foundations and construction of new buildings. Through the implementation of Hydrology Mitigation Measure 12H1-1, UCSF would prepare a construction Storm Water Pollution Prevention Plan to control stormwater quality on-site. Implementation of this plan as described in Hydrology (Chapter 3, Section H of this EIR) would reduce the potential wind and water erosion impacts to a less than significant level.

Mitigation Measure 12G1-3. (Less Than Significant). None required.

Impact 12G1-4. Life Safety Hazard (Project/Less Than Significant). Development of a Major New Site would concentrate a portion of the San Francisco Bay Area population in a location subject to seismic hazards.

The Major New Site would be expected to have approximately 9,100 employees (including students) in addition to visitors and vendors. Implementation of the University Policy on Seismic Safety, which is included as part of the LRDP, would ensure that people working at or visiting the Major New Site would not be exposed to structural hazards or non-structural hazards under the University's seismic performance rating system. This implementation would reduce the potential seismically-induced life safety impacts to a less than significant level. Also, because the development of a Major New Site would include new buildings built to the most current seismic design codes, it would avoid concentration of population in existing, older, buildings which might be subject to greater structural hazards during a seismic event.

Mitigation Measure 12G1-4. (Less Than Significant). None required.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Site Characteristics

Brisbane Baylands

The geo-seismic characteristics of the Brisbane Baylands parcel were investigated in 1992 by Kleinfelder, Inc. and Levine•Fricke.² The Brisbane Baylands parcel has a nearly level to gently undulating surface, about 15 feet above mean sea level (msl). The parcel is divided by the CalTrain right-of-way and Tunnel Avenue into two portions: the railyard and the landfill. The landfill portion of the parcel is east of the CalTrain right-of-way. The landfill's geologic materials consist of 5 to 15 feet of gravelly sandy silt (artificial fill) overlying 15 to 40 feet of municipal waste mixed with sand, silt and clay; 10 to 30 feet of Bay Mud; and 10 to 250 feet of interbedded dense clay, silt and sand above Franciscan sandstone bedrock.³ The railyard portion of the parcel is west of the CalTrain right-of-way. Its geologic materials consist of 10 feet of artificial fill overlying 30 feet of Bay Mud, 10 to 250 feet of old alluvial sediments, and Franciscan sandstone bedrock.⁴

Because the artificial fill and refuse fill at the Brisbane Baylands parcel were placed in reclaimed tidelands, the local groundwater level is tidally, as well as seasonally, influenced. Groundwater at the railyard parcel contains volatile organic compounds, and is in the process of being decontaminated (see Chapter 12, Section F, Hazardous Materials). The water table is close enough to the ground surface that it would be intersected during foundation construction.⁵

Executive Park

The geo-seismic characteristics of the Executive Park parcel were investigated in 1969 by Dames & Moore, and in 1977 and 1982 by Harding-Lawson Associates.⁶ Executive Park is on the southern flank of Bayview Hill. Elevations range from about +20 to +50 feet msl along the southern boundary of the parcel to about +260 to +400 feet msl along the northern boundary. The developed portion of the parcel has a relatively shallow southward slope down toward the edge of San Francisco Bay and is underlain by 3 to 24 feet of firm soils over bedrock. To the south, the lowlands near the edge of the Bay are covered with 15 to 20 feet of consolidated artificial fill. Below the fill is Bay Mud. The thickness of the mud beneath the parcel ranges from about 3 feet beneath the landward portion of the lowlands to about 10 feet on the bayward margin. In some locations the lower portion of the mud (Older Bay Mud) is stiff enough to support piles, but in general, the Bay Mud is unsuitable for foundation support.

To the north, the uplands of Bayview Hill are formed of Franciscan chert, sandstone/shale and greenstone bedrock. Landsliding has occurred near the ridgetop where the contacts between the chert and the shale beds are parallel to the slope of the hillside and have been saturated by storm water. The upper surfaces of the various types of bedrock are weathered and loose, but the rocks become hard and sound at depth. The massive chert and greenstone bedrock toward the edges of the parcel is erosion resistant and highly stable in static and dynamic conditions. The

softer, more permeable sandstone and shale near the center of the parcel are less erosion resistant and may not be stable during severe seismically-induced groundshaking.⁷

Geo-Seismic Hazards

Brisbane Baylands

The potential geologic and seismic hazards for a Major New Site at Brisbane Baylands/Executive Park are as described for the Development Scenario, with the addition of one item: water saturation or groundshaking forces could destabilize hillsides at the Executive Park parcel, causing them to slide, thereby damaging structures below them or supported on them.

b. Impacts and Mitigation Measures

Each impact identified in the Development Scenario and the Site-Specific section is addressed by one or more of the Seismic, Geologic, and Soils Hazards Policies of the Community Safety Element of the *San Francisco Master Plan*, or the *City of Brisbane 1994 General Plan* or the Building Code for each of the two cities in which the Major New Site would be located. The Subsequent EIR adopted in 1985 by the City and County of San Francisco for Executive Park also provided recommendations for the reduction or elimination of geo-seismic hazards at the Executive Park site, including measures to reduce or eliminate the effects of settlement; control of seepage; control of slides; and revegetation to reduce erosion.

By implementing the appropriate policies, through the University Policy on Seismic Safety, each potentially significant impact of a Major New Site at Brisbane Baylands/Executive Park would be reduced to a less-than-significant level.

3. HARBOR BAY

a. Site-Specific Setting

Relationship to Previous EIR

The Earth Sciences section of Chapter IV of *Harbor Bay Isle, A Residential/Industrial Development on Bay Farm Island, City of Alameda, Environmental Impact Report (1973 EIR)* is incorporated by reference.⁸ The Major New Site at Harbor Bay would occupy an area included in the 1973 EIR for Harbor Bay Isle, but not specifically analyzed by the 1973 document. The relevant text from the 1973 EIR is summarized in Appendix 6 of this EIR and briefly reiterated in the following paragraphs. Updated geologic, seismic and soils information has been included here as appropriate and is cited in the endnotes of this section.

The 1973 *Harbor Bay Isle EIR* addresses fill placement, slope stability (lagoons and levees), soil and groundwater conditions, settlement, foundation types, seismic history and seismic exposure, earthquake damage, secondary earthquake hazards (ground failure), and measures to mitigate geo-seismic hazards throughout Bay Farm Island. The EIR recognizes the inevitability of major earthquakes in the Bay Area, the exacerbation of seismic effects caused by artificial fill and Bay Mud underlying Harbor Bay Isle, and the potential for reduction of seismic hazards through the proper use of site-specific geo-seismic information in structural design.

Bay Farm Island, on which Harbor Bay Isle is located, is a diked former wetland, originally dewatered for farming, and artificially filled with dredged sand. The ground surface of the Island is entirely artificial fill (sand) underlain by as much as 1000 feet of fill, Bay Mud, stiff clay, silt, dense sand and gravel, over shale and sandstone bedrock. There is no evidence the island is underlain by active faults. Depth to groundwater varies between two and ten feet. Groundwater conditions are expected to change as the area is developed and the surrounding material is compacted. Driven pile foundations are recommended for structures over six stories high.

The 1973 *EIR* identified the earthquake-induced hazards likely to occur at Harbor Bay Isle as moderate groundshaking, possible secondary ground failures (liquefaction and slope failure), utility line disruption from settlement and possible inundation by tsunami.

The 1973 *EIR* identified four recommendations to be included in the Harbor Bay Isle project to mitigate geo-seismic effects: a) reducing liquefaction hazard through the evaluation of groundwater levels and relative soil densities to establish design criteria for foundations; b) reducing earthquake caused slope failure through slope stability investigations in designing lagoon banks and levee slopes; c) re-compacting building areas and utility corridors susceptible to liquefaction; and d) issuance of building permits dependent on review and approval of the designs proposed to accomplish recommendations a), b), and c). Implementation of similar measures would mitigate seismic hazards for a Major New Site at Harbor Bay.

Site Characteristics

The geo-seismic characteristics of the area of Harbor Bay which would accommodate a Major New Site was investigated by Hallenbeck & Associates in 1985 and again in 1990.⁹ The area has a nearly level to gently undulating surface, generally about +5 feet msl. The ground surface is composed entirely of artificial fill (sand), ranging in thickness from six feet to more than ten feet. The upper part of the fill consists of dense, compacted, slightly cemented, silty sand. The deeper parts consist of loose silty sand, clayey and sandy silts, and soft clays. Below the fill in the southern portion of the area is as much as 15 feet of soft, compressible, water-saturated, silty clay known as Bay Mud. Below the Bay Mud in the southern portion of the area, and below the fill in the northern portion of the area, are sedimentary clayey and silty sand layers extending to bedrock at depths of nearly -1000 feet msl. Portions of the sedimentary sequence are suitable for foundation support.¹⁰

Geo-Seismic Hazards

The potential geologic and seismic hazards for a Major New Site at Harbor Bay are as described for the Development Scenario, with the addition of one item: Harbor Bay Isle is not high enough above sea level to be completely free of flooding by seismic sea waves, although the perimeter dikes provide protection for all but the most extreme predictable cases.

The 1973 *Harbor Bay Isle EIR* included measures to reduce geo-seismic hazards. When those measures were formulated, adherence to conservative foundation design through the application of these measures was considered sufficient to provide an acceptable safety factor against the risks of seismically-induced ground failures, making the seismic conditions at Harbor Bay Isle no worse, and probably better, than other local areas, including the main island of Alameda.¹¹ Liquefaction was a particular concern because Bay Farm Island is underlain by fill and Bay Mud. The recommendations predated the 1989 Loma Prieta earthquake during which liquefaction damage did occur in areas of Alameda underlain by fill and Bay Mud, including portions of Bay Farm Island. Consequently, the 1991 City of Alameda Health and Safety Element contains more specific requirements for development in potentially hazardous geo-seismic areas. The Health and Safety Element requires that new building designs incorporate the findings of site-specific soils and geologic investigations, as well as the city's Uniform Building Code Seismic Standards. Buildings three or more stories high are required to be on pile foundations that penetrate the Bay Mud to firm materials, unless geotechnical findings indicate a more appropriate design. Underground utilities are required to be constructed to minimize the effects of differential ground displacement (through the appropriate use of equipment such as flexible connections and ductile pipe).¹²

b. Impacts and Mitigation Measures

Each impact identified in the Development Scenario and the Site-Specific section is addressed by one or more of the Seismic, Geologic, and Soils Hazards Policies of the Health and Safety Element of the City of Alameda General Plan or the city's Building Code. By implementing the appropriate policies, through the University Policy on Seismic Safety, each potentially significant impact of a Major New Site at Harbor Bay would be reduced to a less than significant level.

4. MISSION BAY

a. Site-Specific Setting

Relationship to Previous EIR

The Geology & Seismicity section of Volume I, Chapter II of the *Mission Bay Final Environmental Impact Report (1990 FEIR)*, certified August 1990, is incorporated by reference.¹³ A Major New Site at Mission Bay would occupy some area included in the 1990

FEIR for the Mission Bay planning area, but not specifically analyzed by the 1990 document. The relevant text from the 1990 *FEIR* is summarized in Appendix 6 of this EIR and briefly reiterated in the following paragraphs. Updated geologic, seismic and soils information has been included here as appropriate and is cited in the endnotes of this section.

The 1990 *Mission Bay FEIR* addresses settlement (total and differential), foundation types (spread footing and driven pile), earthquakes (maximum credible earthquakes and the 1989 Loma Prieta earthquake), secondary earthquake hazards (liquefaction, subsidence and lateral spreading), earthquake damage (slight to severe), and measures to mitigate geo-seismic hazards throughout the Mission Bay planning area.¹⁴ The 1990 *FEIR* recognized the inevitability of major earthquakes in the Bay Area, the exacerbation of seismic effects caused by artificial fill and Bay Mud underlying the Mission Bay planning area, and the potential for reduction of seismic hazards through the proper use of site-specific geo-seismic information in structural design.

The 1990 *FEIR* identified the Mission Bay planning area as an artificially filled former tidal inlet containing as much as 200 feet of unengineered fill, Bay Mud, clay and sand over sandstone bedrock. Several feet of total and differential settlement had occurred in the 150 years since filling began, and more was expected. The 1990 *FEIR* identified three types of foundations that could be used at Mission Bay to reduce or eliminate the adverse effects of the expected settlement: 1) piles could be driven to the more stable material beneath the Bay Mud to support the foundations of structures more than five stories high, or where total settlement is expected to exceed six inches; 2) in areas not subject to excessive settlement, one-to two-story structures could be supported on spread footings or stiffened slabs; and 3) two- to five-story structures could be supported on compensating foundations (concrete slabs that float on a layer of engineered fill).

The 1990 *FEIR* identified the earthquake-induced hazards likely to occur in the Mission Bay planning area as very strong to violent groundshaking, liquefaction, subsidence and lateral spreading. Well-designed and carefully constructed buildings were expected to sustain slight to severe damage, but not to collapse. All infrastructure (roads, bridges and pipelines) was expected to be damaged, and access to Mission Bay limited.

The measures included in the 1990 *Mission Bay FEIR* to mitigate geo-seismic effects were incorporated into the *Mission Bay Mitigation Monitoring Program* as requirements for any development in the planning area. These measures could be used to mitigate the geo-seismic impacts expected to occur as part of development of a Major New Site at Mission Bay. The measures are identified in the "Geo-Seismic Hazards" subsection below.

Site Characteristics

The geo-seismic characteristics of the Mission Bay site were investigated by Treadwell & Rollo, Inc. in 1994.¹⁵ The Mission Bay site has a nearly level to gently undulating surface, generally about +10 feet msl. The ground surface is composed entirely of loose artificial fill, from about 1 foot thick to more than 30 feet thick. The fill is irregularly distributed across the site and is widely variable in its density, compaction, shrink-and-swell potential and corrosivity

characteristics. Below the fill is 10 to 70 feet of soft, compressible, water-saturated, silty clay known as Bay Mud. A layer of sandy alluvium between 1 and about 30 feet thick underlies the Bay Mud. One to 40 feet of Old Bay Clay, a stiff marine deposit, underlies the alluvial sand. The Franciscan bedrock, consisting of chert, shale, serpentine and sandstone, underlies the Old Bay Clay at depths ranging from about -30 feet msl to about -130 feet msl. Portions of the sedimentary deposits are suitable for foundation support, but site-specific geotechnical assessment would be necessary prior to any building construction. The massive (i.e., solid, unfractured) bedrock is very stable in static and dynamic conditions, whereas the thoroughly sheared (i.e., fractured, broken) bedrock may not be stable during severe seismically-induced groundshaking.¹⁶

Geo-Seismic Hazards

The potential geologic and seismic hazards for a Major New Site at Mission Bay site are as described for the Development Scenario, with the addition of one item: Mission Bay is not high enough above sea level to be completely free of flooding by seismic sea waves, although the depth of flooding would be less than one foot in the most extreme case predictable.

The 1990 Mission Bay FEIR addressed the issues raised by the Special Geologic Study Areas for the entire Mission Bay planning area in Section 15 of the *Mission Bay Mitigation Monitoring Program*. Section 15 provided measures specifically formulated to reduce geo-seismic hazards throughout the planning area. With other measures in the Monitoring Program, Items K1 through K23 in Section 15 listed the actions, responsible party and schedule for addressing soils, geologic, geotechnical and seismic issues for development of any building site within the planning area. The measures include site investigation, design and construction controls as well as emergency response plan requirements. Adherence to these mitigation measures would make the planning area as safe or safer than other areas in San Francisco, although greater concentrations of people would be susceptible to injury.¹⁷ Implementation of the geo-seismic measures in the *Mission Bay Mitigation Monitoring Program* would contribute to increased public safety in the seismically-active Bay Area.

b. Impacts and Mitigation Measures

Each impact identified in the Development Scenario and the Site-Specific section is addressed by one or more of the previously described geo-seismic mitigation measures required in the *Mission Bay Mitigation Monitoring Program* for all projects within the Mission Bay planning area. By implementing the appropriate policies, through the University Policy on Seismic Safety, each potentially significant impact of a Major New Site at Harbor Bay would be reduced to a less than significant level.

1. University of California, Office of the President, University Policy on Seismic Safety, revised January 17, 1995.

2. a) G. Jett, and J.E. Rommie, *Solid Waste Water Quality Assessment Test Report, Brisbane Landfill, Brisbane, California*, prepared for Tuntex Properties by Kleinfelder, Inc., August 10, 1992.

b) J.D. Levine, and K. Buchanan, *Remedial Action Plan, Bayshore Railyard, Brisbane, California*, prepared for Department of Toxic Substances Control, Cal-EPA by Levine•Fricke, July 27, 1992.
3. G. Jett and J.E. Rommie, *Solid Waste Water Quality Assessment Test Report, Brisbane Landfill, Brisbane, California*, prepared for Tuntex Properties by Kleinfelder, Inc., August 10, 1992, Plates 2, 3, 4, 8, 9, 10 & 11.
4. J.D. Levine and K. Buchanan, *Remedial Action Plan, Bayshore Railyard, Brisbane, California*, prepared for Department of Toxic Substances Control, Cal-EPA by Levine•Fricke, July 27, 1992, Figures 2, 4, 5, 8, & 11.
5. G. Jett, and J.E. Rommie, *Solid Waste Water Quality Assessment Test Report, Brisbane Landfill, Brisbane, California*, prepared for Tuntex Properties by Kleinfelder, Inc., August 10, 1992, Plates 12 & 16.
6. a) Dames & Moore, *Preliminary Geological Engineering Study, Slope Stability and General Subsurface Conditions, Proposed Development, Candlestick Cove, San Francisco, California*, 1969.

b) Harding-Lawson Associates, *Geotechnical Investigation, San Francisco Executive Park, San Francisco, California*, 1977.

c) City and County of San Francisco, Department of City Planning, *Executive Park Development Plan Final Environmental Impact Report*, SCH No. 76070571, August 12, 1976.

d) City and County of San Francisco, Department of City Planning, *Executive Park Development Plan Amendment Subsequent Final Environmental Impact Report*, SCH No. 76070571, October 17, 1985.
7. J.C. Schlocker, *Geology of the San Francisco North Quadrangle, California*, United States Geological Survey, Professional paper 782, Washington D.C., 1974, pp. 93-99 and Plates 1 & 2.
8. a) City of Alameda, *Harbor Bay Isle, A Residential/Industrial Development on Bay Farm Island, City of Alameda, Draft Environmental Impact Report*, 1973, pp. IV-179 - IV-201.

b) City of Alameda, *Harbor Bay Isle, A Residential/Industrial Development on Bay Farm Island, City of Alameda, Final Environmental Impact Report*, January 1994, pp. 13-16.
9. a) J.J. Hallenbeck, Jr., Hallenbeck & Associates, *Summary Report, Geologic and Geotechnical Conditions, Harbor Bay Business Park - Alameda*, prepared for Lee Eichelberger, Reclamation District, June 26, 1985.

b) J.J. Hallenbeck, Jr., Hallenbeck & Associates, *Soil Conditions, Harbor Bay Business Park, Alameda, California*, letter report prepared for C. Tim Hoppen, Doric Development, Inc., August 24, 1990.

10. D.H. Radbruch, *Areal and Engineering Geology of the Oakland West Quadrangle, California*, United States Geological Survey, Miscellaneous Geologic Investigations Map I-239, 1957, map and accompanying text and table.
11. City of Alameda, *Harbor Bay Isle, A Residential/Industrial Development on Bay Farm Island, City of Alameda, Final Environmental Impact Report*, January 1974, pp. 15-16.
12. City of Alameda, *Health and Safety Element*, Section 8 of the General Plan, February 5, 1991, p. 121.
13. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, pp. VI.K.1 – VI.K.61.
14. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.I, p. II.76 – II.80.
15. a) L. A. Simpson, and F. L. Rollo, Treadwell & Rollo, Inc., *Proposed UCSF Site, Mission Bay, San Francisco, CA*, letter report to Kerstin Magary, Catellus Development Corporation, October 31, 1994.

b) City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, pp. VI.K.1–VI.K.61.
16. J.C. Schlocker, *Geology of the San Francisco North Quadrangle, California*, United States Geological Survey, Professional Paper 782, Washington, D.C., 1974, pp. 93 – 99 and Plates 1 & 2.
17. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II pp. VIII.3 – VIII.4.

H. HYDROLOGY AND WATER QUALITY

Hydrology means the movement of water over the surface and through the subsurface of the earth. Water quality refers to the chemical characteristics by which water can be described. Development of Major New Site facilities at any of the potential locations would introduce physical changes in the landscape which could adversely affect existing hydrology or water quality. For example, flooding could result if development results in the loss of the ability to direct stormwater away from structures, whether on-site or off-site. Development can also increase the amount of impervious surface, resulting in decreased infiltration capability. New development may affect water quality by generating new sources of wastewater or stormwater, or by adding other constituents into the wastewater. As previously described in Chapter 3, Section H, UCSF must comply with wastewater and stormwater regulations.

The following site-specific settings for each of the Major New Sites describes the baseline (pre-Major New Site) conditions of above-ground and below-ground water resources, including any relevant local regulations that were not included in Chapter 3, Section H. The impacts section analyzes the effects of the proposed Major New Site activities (construction and project operation) on these existing conditions. The standards of significance are used to determine whether an impact is considered significant. Impacts determined to be significant have mitigation measures which would avoid the impact or reduce the impact to a less than significant level.

1. DEVELOPMENT SCENARIO

a. Scenario Specific Standards and Methods

Although the characteristics of the potential Major New Sites are unique, some similar hydrology and water quality impacts would be expected to occur at all sites. The common points of these potential impacts are discussed below. Any portion of an impact that would apply to only a particular Major New Site is discussed in the site-specific impact discussion for that Major New Site.

This section identifies the Development Scenario and Site-Specific effects of the Major New Site on hydrology and water quality at Brisbane Baylands/Executive Park, Harbor Bay, or Mission Bay as impacts of LRDP activities at a new site. Those impacts would be similar to effects of build-out of business park or research and development uses designated in approved plans for those Major New Sites, regardless of project sponsor.

b. Impacts and Mitigation Measures

Impact 12H1-1. Erosion and Sedimentation of the San Francisco Bay (Construction/Significant). Construction areas at a Major New Site may be subject to erosion, which could increase sedimentation in the San Francisco Bay during wet weather.

Construction activities at a Major New Site could generate increased erosion and sedimentation during wet weather. Each Major New Site is relatively flat, with little potential for erosion when undisturbed. However, site grading and cut and fill operations especially at Executive Park, would expose large areas to erosion, which could increase concentration of suspended solids in the sewer system. Erosion could also occur from soil stockpiles on a construction site. In addition, other construction activities, including truck and heavy equipment traffic, tend to spread soil onto surrounding roads and walkways, where it could be washed into storm drains and could result in sedimentation and obstruction of flow in the storm drains. Increases in suspended solids may affect the beneficial uses of the San Francisco Bay and could contribute to exceedances of water quality objectives, as set forth in the San Francisco Bay Basin Plan. Therefore, this impact would be significant prior to mitigation.

Mitigation Measure 12H1-1. (Less Than Significant). UCSF would prepare a construction Storm Water Pollution Prevention Plan that includes at least the following Best Management Practices to control stormwater quality on-site. UCSF's construction contracts would require contractors to implement the Plan. Implementation would reduce the impact to a level that is less than significant.

The Best Management Practices of the Stormwater Pollution Prevention Plan would address the following issues:

- Minimizing the area and length of time that the Major New Site is cleared and graded.
- Preventing the release of construction activity pollutants such as cement mortar, paints and solvents, fuel and lubricating oils, pesticides and herbicides.
- Installation of filter fences and/or hay bales to slow water and remove sediments, planting grasses, or covering soil with stabilizing coatings or plastic sheeting to minimize erosion of dirt storage piles.
- Installation and maintenance of sediment and grease traps in local stormwater intakes during the construction period and cleaning of wheels and covering of loads of trucks carrying excavated soils before they leave construction sites.
- Implementation of a hazardous material spill prevention, control and cleanup program.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Surface Water Resources

Guadalupe Lagoon, which is a remnant part of San Francisco Bay created when US 101 was constructed, is south of the Baylands. An outlet under the highway near the northeast corner of the lagoon provides periodic tidal action and allows some flushing of the lagoon water.¹

An open drainage channel exists parallel to Industrial Way, and another flows west to east across the landfill area.

No streams or lakes exist within the Executive Park portion of the site. As described in the *1985 Executive Park Development Plan Amendment Subsequent EIR*, springs occur on the upper slopes of Bayview Hill and are concentrated in areas of weak sheared rock. Groundwater seepage occurs on several cut slopes and is concentrated in areas of recent slides and contacts between different rock types, producing small ponds on the terraces that comprise the south-facing slope of Bayview Hill.²

Drainage and Flood Control

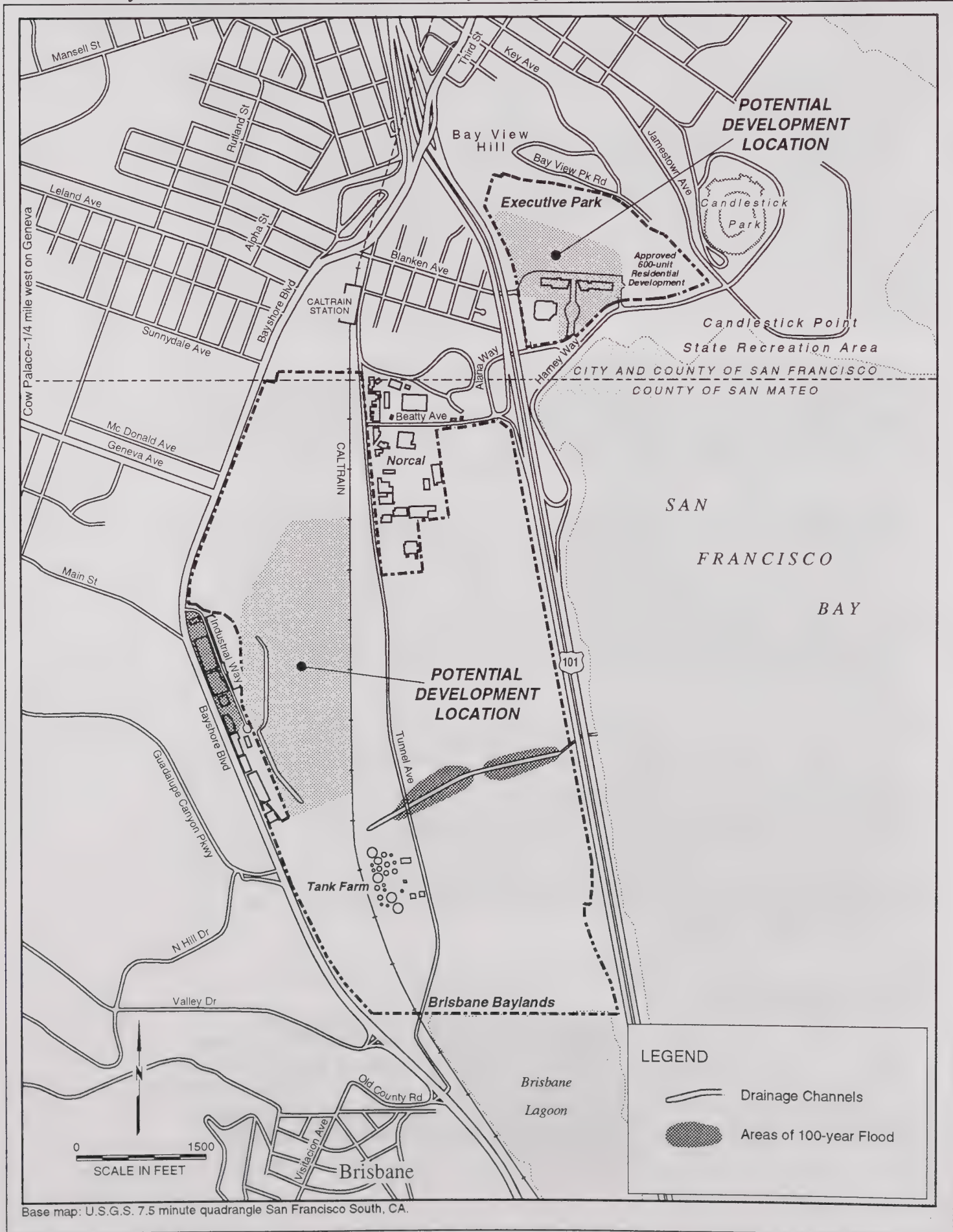
Brisbane Baylands lies within a watershed that drains into two open ditches, shown on Figure 12-15, along Industrial Way. Water from the ditches drains into San Francisco Bay via the open flood channel on the landfill area.³ This open flood channel is connected to the bay by culverts beneath US 101. During the bay's high tides, bay water flows into the drainage channel. During ebb flows, the channel drains to the bay.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), there are no areas within Brisbane Baylands that are subject to inundation in the event of a 100-year flood (see Figure 12-15). However, two 100-year floodplain areas exist nearby. One is along the central drainage channel on the landfill area, and the other is between Bayshore Boulevard and Industrial Way in an area presently occupied by warehouses.⁴ Flooding in this area is caused by the inadequate capacity of the drainage ditches that parallel Industrial Way. The City of Brisbane is currently considering recommendations for alleviating the flooding problem in the drainage ditches and for the drainage channel.⁵

The developed part of Executive Park is served by a stormwater drainage system which treats stormwater runoff prior to discharge in the bay. Drainage from the undeveloped upper slopes of Executive Park occurs via lateral terraces that direct storm water runoff toward the back of each terrace instead of forward over the steeply cut slopes.⁶ The terraces are lined with concrete V-shaped ditches that collect runoff and divert surface water toward the midpoint of each terrace into covered culverts that subsequently discharge into local storm drains. Runoff over the other undeveloped portions occurs via sheet flow into gutters along nearby streets. Flooding does not generally occur in Executive Park, and FEMA has not mapped any 100-year floodplain areas there.⁷

Groundwater Resources

No aquifers or groundwater recharge areas have been identified in Brisbane Baylands.⁸ However, groundwater occurs approximately 5 to 20 feet below ground surface in a debris fill layer that is approximately 15 feet thick. This upper groundwater-bearing zone is underlain by an impermeable layer of Bay Mud that is 10 to 40 feet thick. Another layer of sand occurs beneath the Bay Mud and contains groundwater that is confined and under



pressure.⁹ The shallow groundwater on the former landfill area east of the railyard area generally flows east toward the San Francisco Bay. The deep groundwater beneath the Bay Mud layer generally flows toward the southeast and the northeast. Except at one area at the southeastern end of Brisbane Baylands, the groundwater does not mix with San Francisco Bay.¹⁰

Groundwater at Executive Park is about 18 to 20 feet below the surface. The groundwater level is about six to eight feet below the surface within the area underlain by Bay Mud deposits in the southern part of Executive Park.¹¹

Surface Water Quality

The drainage ditches discussed above collect runoff from a large watershed area that contains mixed land uses. Consequently, it is expected that the water quality in the ditches is similar to that of typical urban runoff, containing oil and grease, sediment, heavy metals, fertilizers, and pesticides. The presence of metals is indicated by chemical analysis of surface water data from previous studies of the drainage canal on the landfill side of Brisbane Baylands and of Guadalupe Lagoon.¹²

Groundwater Quality

As described in Section F, Hazardous Materials, historic use of Brisbane Baylands as a railyard and landfill has resulted in extensive contamination of soil and groundwater by volatile organic compounds, petroleum hydrocarbons, and metals. Remediation of this area has been initiated and is expected to require up to 10 to 15 years for completion of cleanup activities. Because contamination levels exceed drinking water standards, the Regional Water Quality Control Board does not consider surface and ground waters in this area to be potential drinking water sources.¹³

For Executive Park, little data are available on existing groundwater quality. Due to its proximity to the Bay shoreline, however, groundwater quality is expected to contain high levels of total dissolved solids and high salinity that would deem it unsuitable for drinking water purposes. No known groundwater contamination issues are associated with Executive Park.

Wastewater Treatment

The City of Brisbane is served by two sanitary sewer districts: the City of Brisbane and the Bayshore Sanitary District. Brisbane Baylands is within the Bayshore Sanitary District. Sewage collected by the Bayshore Sanitary District is treated by the City and County of San Francisco's Southeast Water Pollution Control Plant, which also provides treatment for combined sewage and storm water from areas of San Francisco, including the sanitary wastewater and stormwater runoff from Executive Park. Storm water from the Brisbane Baylands, however, is not treated. The quality of the effluent discharged from the Southeast

Water Pollution Control Plant is regulated by a National Pollutant Discharge Elimination System permit.

Occasionally, treatment capacity at the Southeast Plant is exceeded by the volume of stormwater runoff during wet weather. When this occurs, untreated effluent overflows into Islais Creek. In response to a Regional Water Quality Control Board order to cease all overflows into Islais Creek, the City and County of San Francisco is exploring alternative discharge locations. The City projects that an alternative could be selected by the year 2000; however, it is unknown when an alternative would be implemented.¹⁴

b. Impacts and Mitigation Measures

Impact 12H2-1. Increased Urban Pollutant Load (Project/Significant). Development of a Major New Site at Brisbane Baylands/Executive Park would increase the urban pollutant load in stormwater runoff to the San Francisco Bay.

With the exception of the existing office building development at Executive Park, the Brisbane Baylands/Executive Park site is currently undeveloped with no known pollutant-generating land uses. Sources of stormwater pollution that would result from development of a Major New Site at Brisbane Baylands/Executive Park would include automobiles and activities associated with automobile use (roadways and parking lots), housekeeping and landscaping practices, accidental spills, and illegal dumping. The pollutants that could be generated include sediment, nutrients, bacteria and viruses, oxygen-demanding substances, oil and grease, metals, toxic pollutants, and floatable debris. Runoff from the Brisbane Baylands would drain directly into the San Francisco Bay and could contain these constituents. Development of Executive Park, however, would not contribute significant amounts of urban runoff pollutants to San Francisco Bay, as stormwater runoff from this site is collected and treated prior to discharge. An increase in urban pollutants could adversely affect the ability of the Bay to support established beneficial uses and could violate water quality objectives as established in the Basin Plan. Such an increase would be a significant impact.

Mitigation Measure 12H2-1. (Less Than Significant). To minimize the addition of urban pollutants to San Francisco Bay, UCSF would develop a Best Management Practices program that would be implemented during the design, construction, and maintenance of a Major New Site at Brisbane Baylands/Executive Park. The goals of the Best Management Practices program would include preventing erosion and sediment from exposed areas and preventing other urban pollutants such as nutrients, bacteria and viruses, oxygen-demanding substances, oil and grease, and heavy metals from entering the storm drain systems. UCSF would consult with the City of Brisbane to review local requirements for a Best Management Practices program. This would reduce the effects to a less than significant level.

Impact 12H2-2. Increased Flooding Hazards (Project/Significant). Development at Brisbane Baylands would substantially increase the amount of surface runoff and could expose structures or people to increased flooding hazards.

Brisbane Baylands are presently undeveloped, and its surface is generally pervious. Development of a Major New Site would add impervious surfaces due to new buildings, roads, and parking lots. Surface runoff would increase because less infiltration into the groundwater would occur. During wet weather, stormwater runoff from the Baylands would drain into existing drainage ditches along Industrial Way. The flooding problems at these drainage ditches would be exacerbated with any increase in stormwater runoff. In addition, the area of the 100-year floodplain near the intersection of Bayshore Boulevard and Industrial Way may increase. It is anticipated that the Major New Site would include drainage facilities to avoid on-site flooding. However, if drainage facilities were to direct runoff to the drainage ditches at Industrial Way or to the central drainage channel on the adjacent landfill area, flooding risks could be increased. Increasing flooding risks would be a significant impact.

Mitigation Measure 12H2-2. (Less Than Significant). The Major New Site would include storm drain infrastructure and other facilities that would avoid increasing the risk of offsite flooding or increasing the area of offsite 100-year floodplain areas. Such facilities could include retention or storage structures.

3. HARBOR BAY

a. Site-Specific Setting

Harbor Bay Isle has undergone previous environmental review and thus, the following documents are hereby incorporated by reference and the relevant material is summarized below: *Harbor Bay Isle Final Environmental Impact Report*;¹⁵ and *Addendum to Final Environmental Impact Report for Harbor Bay Isle*.¹⁶

General Hydrology

Surface Water Resources

As shown on Figure 12-16, a system of open drainage ditches traverses the Major New Site at Harbor Bay.¹⁷ Off-site surface water resources include San Francisco Bay which lies adjacent to the Harbor Bay site. Other off-site water bodies shown on Figure 12-16 consist of several lagoons that provide stormwater drainage for Bay Farm Island during wet weather and provide a visual and recreational amenity at other times. The lagoon adjacent to the southwestern boundary of Harbor Bay is on the property of the Port of Oakland and does not receive any stormwater drainage from Harbor Bay.

Groundwater Resources

Although groundwater is present within Harbor Bay, no distinct groundwater aquifers exist. Because the fill material is mainly sandy, permeability over Harbor Bay is generally high. Depending on location and time of year, groundwater levels on the site vary from two to ten feet below the surface.¹⁸ The drainage ditches within Harbor Bay are likely sources of groundwater recharge.

Drainage and Flood Control

Because of the results in relatively high soil permeability at the site, most rainwater falling on the site infiltrates and percolates into the groundwater table.¹⁹ As shown on Figure 12-16, the Major New Site at Harbor Bay drains into San Francisco Bay via surface drainage ditches and existing underground storm drains to a direct outfall. The area north of Harbor Bay Parkway drains into a storm drain along Harbor Bay Parkway, and drainage from the area south of Harbor Bay Parkway and South Loop Road flows into storm drains along South Loop Road. These storm drains were designed and constructed by the City of Alameda to allow for future development of the Business Park.²⁰

The FEMA Flood Insurance Rate Map for the City of Alameda identifies the golf course north of the Major New Site area as the only 100-year floodplain area on Bay Farm Island.

General Water Quality

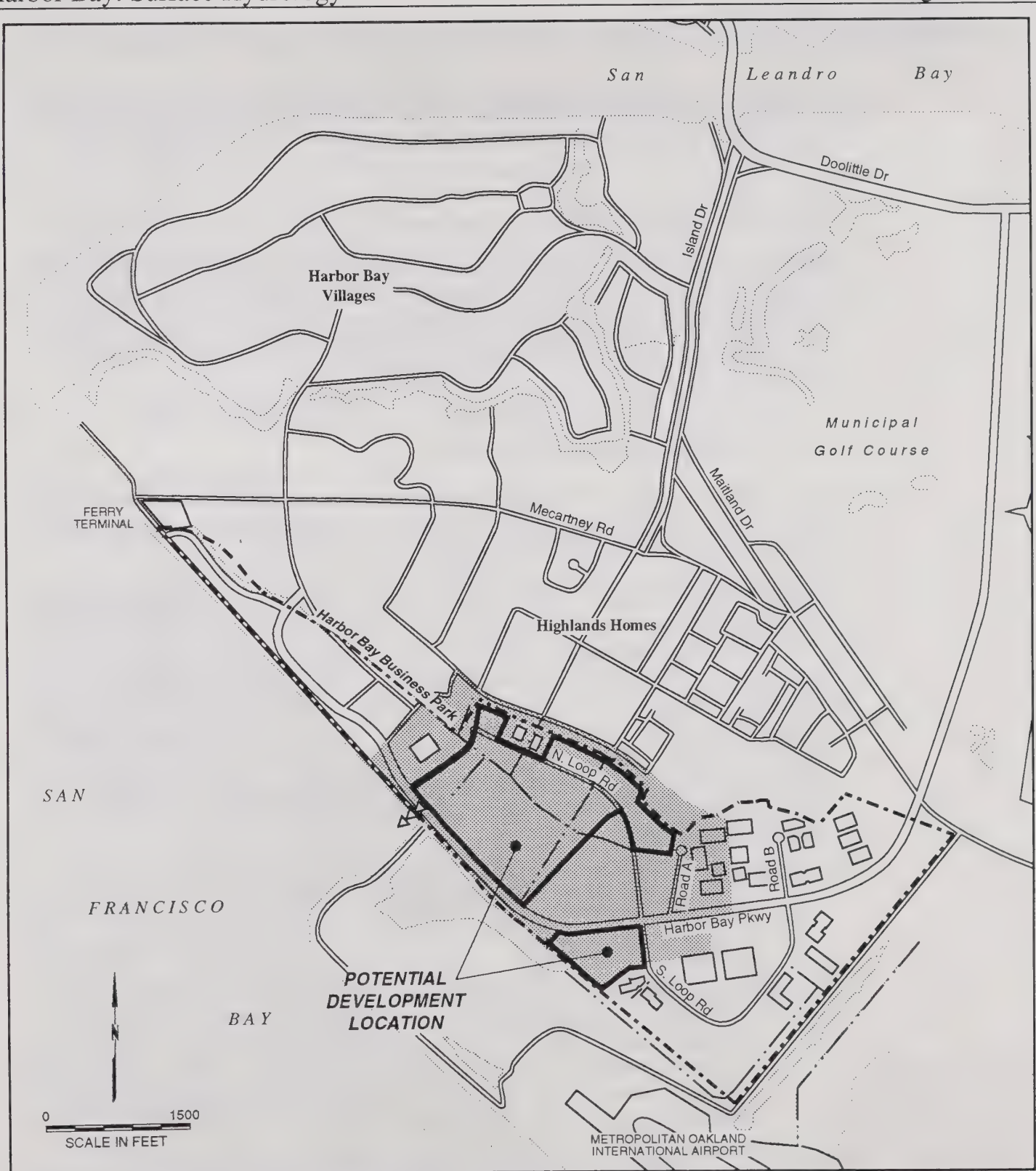
Surface Water Quality

There is little information available to describe the surface water quality of the drainage ditches. However, past studies have characterized the water quality as brackish (salty) due to its proximity to the bay.²¹

Groundwater Quality

The proximity of the Harbor Bay site to the San Francisco Bay suggests that the groundwater quality is saline. The high concentration of dissolved ions (salts) in the bay waters would tend to cause diffusion of these ions (salts) into the groundwater, where concentrations are lower than in the bay waters. Due to its brackishness, there are currently no domestic uses of groundwater on Bay Farm Island.²²

A Phase I Environmental Site Assessment previously performed for the Harbor Bay Isle Business Park evaluated the past and present uses of the Harbor Bay Isle Business Park and areas bordering the site to identify uses that may have resulted in soil or groundwater contamination.²³ The Site Assessment concluded that the risk of significant groundwater contamination is low because past and present site uses did not introduce significant quantities



Base map: U.S.G.S. 7.5 minute quadrangles Hunters Point, Oakland East, Oakland West and San Leandro, CA.

LEGEND

- Outfall Structure
- Open Drainage Ditch
- Drainage Basin

of hazardous materials to the site (please see Chapter 12, Section F, Hazardous Materials, for further discussion on potential soil and groundwater contamination at the Harbor Bay site).

Wastewater Treatment

Other than stormwater, no wastewater is currently generated at the Harbor Bay site. Sewage generated by other areas of the City of Alameda is conveyed to the East Bay Municipal Utility District (EBMUD) facilities for treatment (please see Chapter 3, Section K, Utilities and Infrastructure, for further information regarding EBMUD's ability to provide wastewater treatment for Major New Site facilities at Harbor Bay).

b. Impacts and Mitigation Measures

Impact 12H3-1. Increased Urban Pollutant Load (Project/Significant). Development of the Major New Site at Harbor Bay would increase the urban pollutant load in stormwater runoff to the San Francisco Bay.

The Major New Site at Harbor Bay is partially developed with a few pollutant-generating land uses such as roadways. Sources of stormwater pollution that would result from development of Major New Site facilities at Harbor Bay include roadways, automobiles, landscaping, and accidental spills. Runoff from roadway and parking lot areas could potentially contain levels of oil, grease, and heavy metals. Runoff from landscaped areas could potentially contain high concentrations of nutrients, i.e., fertilizers and pesticides. Because all runoff from the Harbor Bay site would drain directly into the San Francisco Bay, any increase in urban pollutants may adversely affect the ability of the bay to support established beneficial uses, defined in Chapter 3, Section H, Hydrology and Water Quality, and may violate water quality objectives. Thus, this impact would be significant.

Mitigation Measure 12H3-1. (Less Than Significant). To minimize the addition of urban pollutants to San Francisco Bay, UCSF would develop a Best Management Practices program that would be implemented during the design, construction and maintenance of a Major New Site at Harbor Bay. The goals of the Best Management Practices program would include preventing erosion and sediment from exposed areas and preventing other urban pollutants such as nutrients, bacteria and viruses, oxygen-demanding substances, oil and grease, and heavy metals from entering the storm drain system. UCSF would consult with the City of Alameda to review local requirements for Best Management Practices program. This would reduce the effects to a less than significant level.

Impact 12H3-2. Increase Flooding Hazards (Project/Significant). Development of a Major New Site at Harbor Bay would substantially increase the amount of surface runoff but would not expose structures or people to increased flooding hazards.

The Major New Site at Harbor Bay is presently undeveloped with the exception of two school buildings, and its surface is entirely pervious. Development of Major New Site facilities would add new impervious surfaces associated with buildings, new infrastructure to replace the existing drainage ditches, and other impervious paving such as roads and parking lots. Surface runoff would increase because less infiltration into the groundwater would occur. However, the city has indicated that its storm drain system has adequate capacity to handle increased storm runoff from any future development at the Harbor Bay Business Park.²⁴ In addition, future storm drain infrastructure within the Major New Site area would be designed to adequately accommodate increased stormwater runoff anticipated from development of the Harbor Bay site. Thus, increased risk of flooding is not expected to result from implementation of a Major New Site at Harbor Bay. Therefore, this impact is considered to be less than significant.

Mitigation Measure 12H3-2. (Less Than Significant). None required.

4. MISSION BAY

The *Mission Bay FEIR* examined the environmental effects of the *Mission Bay Plan*, including effects on Hydrology and Water Quality.²⁵ Existing hydrology and water quality conditions described in that document are similar to or the same as those that would apply to the Major New Site development.

a. Site-Specific Setting

Flood Control

No significant areas of the 100-year floodplain exist in the City and County of San Francisco. Thus, the City and County of San Francisco does not administer a local floodplain management ordinance. However, the *San Francisco Master Plan* indicates that Mission Bay is in an area of potential inundation hazard due to tsunami run-up (see Chapter 3, Section G, Geology and Seismicity, for further discussion of tsunami hazards).

General Hydrology

Fill and grading of Mission Bay have left a mostly flat surface with little topographic relief. Mission Bay ranges from about 6 feet to 15 feet above mean sea level (msl).

Surface Water Resources

No surface water resources are present at Mission Bay. However, Mission Bay was formerly part of San Francisco Bay until it was filled in between the late 1800s and early 1900s.

Groundwater Resources

The depth to groundwater ranges from 3.5 feet to 9 feet below the ground surface. In general, the groundwater table elevation coincides with the mean water level, or mean sea level, in the adjacent San Francisco Bay.²⁶ There are no uses of groundwater at Mission Bay.

Drainage and Flooding

Stormwater runoff from most of Mission Bay is collected in the storm drains connected to the city's combined sanitary sewage/stormwater collection system. In some unpaved areas rainwater can infiltrate the soil and percolate to the underlying groundwater table. Portions of Mission Bay along the bay shore drain directly into the bay rather than into the storm water collection system.

General Water Quality

Surface Water Quality

The city's combined stormwater/sewer system carries wastewater and stormwater runoff from areas throughout the city, including Mission Bay. Many industries in Mission Bay use, handle and store chemicals, and generate a variety of chemical wastes or by-products. Past and present disposition of chemicals (solvents, fuels, waste materials) through accidental spills or storage and disposal could have resulted in contamination of soils and groundwater at Mission Bay through percolation, and in surface runoff. Petroleum could have leaked during fueling operations. It is also expected that intentional and illegal dumping of chemicals has likely occurred. The low nighttime population of the area may attract "midnight dumping" by unknown persons of materials into the stormdrain intakes and onto the ground. Materials also may leak into ground and surface waters from drain and sewer collection systems.

Runoff from street surfaces at Mission Bay contains pollutants which contaminate runoff and receiving waters. Many of these pollutants likely reflect the industrial nature of Mission Bay and consist of heavy metals and oil and grease. Other pollutants such as suspended particulates and sediments result from local soil erosion. Most of these materials are probably carried by surface runoff to the storm drains.²⁷

Groundwater Quality

Previous testing of water samples from seven water quality monitoring wells located throughout the Mission Bay planning area west of Third Street was conducted in conjunction with the *Mission Bay FEIR*. The results indicated that the groundwater is brackish (water with a salinity between that of non-saline freshwater and sea water) and appeared to be contaminated with sewage. The brackish nature of the groundwater could be a result of intrusion of San Francisco Bay water into the freshwater.²⁸ As discussed previously, coliform counts in the groundwater

samples are far in excess of safe drinking water standards for municipal supplies. The following discussion provides further details of groundwater quality and is from the *Mission Bay FEIR*.²⁹

Groundwater in Mission Bay likely contains trace amounts of some hazardous materials deposited on the surface or in the soil over the past 125 years by industries operating in and adjacent to Mission Bay. Although groundwater in Mission Bay has not been tested yet for such materials, hazardous toxics (those that will dissolve in water) could have moved down through the fill with rainfall, percolating to groundwaters.

Underground storage tanks are potential sources for contaminant release into surrounding soils and groundwater. Aging or improperly designed and maintained tanks may release their contents to the subsurface environment, and generally do so undetected. The degree of contamination depends on several factors including pollutant characteristics, soil type and thickness, depth to groundwater, and hydrologic characteristics of the site.

Wastewater Treatment

During dry weather, wastewater from the Mission Bay area is conveyed to and is treated at the Southeast Water Pollution Control Plant. During wet weather, storm runoff from the Mission Bay planning area is also conveyed to and treated at the Southeast Water Pollution Control Plant. However, the storage capacity of the storage sewer is sometimes exceeded, as mentioned above. Overflows occur at six overflow structures along China Basin Channel. Constituents typically found in combined sewer overflows include bacteria, suspended solids, and ammonia found in sanitary sewage, that are generally at lower concentrations because of dilution by stormwater but still exceed standards for beneficial uses of the bay.³⁰ A complete discussion of impacts of overflows on water quality within the channel are provided on pages VI.L.8 to VI.L.9 in the *Mission Bay FEIR*.³¹

b. Impacts and Mitigation Measures

The 1990 *Mission Bay FEIR* included a hydrology and water quality analysis on the 300-acre Mission Bay Project Area that examined the effects of full build-out in 2020. The analysis examined effects that included erosion and sedimentation from construction activities; changes in peak runoff amounts and quality; flooding effects due to the 100-year high tide (defined later in this section), sea level rise, and high groundwater levels; changes in groundwater hydrology and quality; water quality changes in China Basin Channel; and development of wetlands in the northern part of the Mission Bay area. These effects were mitigated by measures outlined in the *Mission Bay FEIR* to reduce or eliminate these effects. The hydrology and water quality analysis in the 1990 *Mission Bay FEIR* may be applied to the project-specific effects of development of a Major New Site at Mission Bay, and thus, the 1990 *Mission Bay FEIR* is hereby incorporated by reference.³² The following impact analysis summarizes the conclusions of the 1990 *Mission Bay FEIR* and updates and revises the analysis as appropriate for impacts for the Major New Site at Mission Bay.

Impact 12H4-1. Contaminated Sediments Due to Erosion (Construction/Significant). In addition to the erosion hazards identified in Development Scenario Impact 12H1-1, some of the soil in the Mission Bay area has been exposed to past industrial activity and contains elevated concentrations of contaminants. Erosion of the soil could result in contaminated sediments in the sewer system.

Stormwater runoff from Mission Bay would be treated at the Southeast Water Pollution Control Plant. However, treatment plant capacity may be exceeded during periods of heavy wet weather, and overflows of untreated stormwater and sewage may occur at a number of points along the city's shore into San Francisco Bay. Overflows would adversely affect the water quality of San Francisco Bay by affecting beneficial uses and potentially contributing to exceedances of water quality objectives established in the Basin Plan. Therefore, this impact would be significant.

Mitigation Measure 12H4-1. (Less Than Significant). Implement Development Scenario Mitigation Measure 12H1-1. UCSF would implement the above mitigation to avoid erosion and sedimentation impacts. This mitigation revises and updates Mitigation Measures L.1 and L.6 found in the *Mission Bay Mitigation Monitoring Program* to include stormwater management requirements adopted by legislation since formulation of the *Mission Bay Mitigation Monitoring Program*.

Impact 12H4-2. Spread of Groundwater Contamination (Construction/Less Than Significant). Construction activities at a Major New Site at Mission Bay could encounter unknown groundwater contamination and could pose the risk of additional groundwater contamination.

As described in Chapter 12, Section F, Hazardous Materials, it is highly likely that groundwater contamination exists in Mission Bay due to probable chemical releases, pesticide use, fuel spills, and leaking underground storage tanks. Because investigations for soil and groundwater contamination have not yet been completed for Mission Bay, it is not known where such contamination actually exists. If contaminated areas were not properly identified and remediated, excavation activities during construction could inadvertently disturb contaminated areas and could pose the risk of spreading the contamination into other areas. For example, if a tank containing a hazardous material were ruptured by construction equipment, the material would spill and contaminate the surrounding area. The 1990 *Mission Bay FEIR* concluded the following about the impacts of the potential presence and removal of leaking underground storage tanks:

- Removal of leaking underground storage tanks as part of excavation activities would improve groundwater quality, but removal also poses the risk of additional contamination from containers rupturing during removal.
- Dewatering may be necessary during excavation, due to the shallow groundwater levels present at Mission Bay. If the groundwater that is removed is contaminated with hazardous waste, then dewatering would remove the waste. However, the displacement of the contaminated groundwater could also encourage saltwater intrusion into the dewatered areas. Despite the potential

for saltwater intrusion, the net water quality effect would be improved water quality. In addition, UCSF does not propose uses of groundwater at the Major New Site at Mission Bay.

- Excavation to the water table, pooling of groundwater at the surface, seepage into below grade structures, or seepage into the bay could expose the public and/or terrestrial and aquatic wildlife to contaminated groundwater.
- Chemical spills in areas that are pervious could present potential pathways for groundwater contamination during construction.

The *Mission Bay Hazards Mitigation Program*, adopted as part of the 1990 *Mission Bay FEIR* addresses hazardous materials, outlines an investigation program, and provides a framework for any necessary remediation. Catellus Development Corporation, the Mission Bay developer, would initiate The Mission Bay Hazards Mitigation Program as applicable to any future individual development projects at Mission Bay, pursuant to The Development Agreement. Specifically with respect to underground storage tanks, however, the Hazards Mitigation Program addresses comprehensive measures for investigating, identifying, and remediating groundwater contamination from leaking underground storage tanks at Mission Bay. Measures include installing monitoring wells to identify possible contaminant migration (Measure N.1); geophysical surveys and an electromagnetic survey to locate possible buried tanks (Measure N.2); consideration of groundwater clean-up measures that include groundwater pumping, air stripping, extraction, and filtration (Measure N.3); and implementing safety measures to protect workers and other individuals at cleanup sites from hazardous airborne dust and toxic gases that could be released (Measures N.5a-e).³³ Thus, measures are in place that would remediate existing groundwater contamination and would avoid further groundwater contamination by Major New Site development at Mission Bay. Therefore, this impact is considered to be less than significant.

Catellus Development Corporation, as property owner, would implement the *Mission Bay Hazards Mitigation Program* or otherwise investigate and remediate existing groundwater contamination, and avoid further contamination in accordance with the requirements of the Regional Water Quality Control Board and the San Francisco Department of Public Health.

Mitigation Measure 12H4-2. (Less Than Significant). None required.

Impact 12H4-3. Increases in Surface Runoff (Project/Less Than Significant).
Development of Major New Site at Mission Bay would not substantially change the amount or quality of surface runoff.

Mission Bay is presently occupied by various structures, pavement, and other impervious surfaces. Areas that may be more permeable than others include weedy patches, compacted dirt areas, and other open areas. Plans for development include installing landscaped areas that would allow infiltration of some stormwater so that there would likely be no net increase in stormwater runoff.

As discussed in the 1990 *Mission Bay FEIR*, new development including the Major New Site would result in the elimination of existing pollution-generating activities at Mission Bay. Existing uses would be replaced by research, housing, instruction, and support facilities. Pollutants generated by these uses would be similar to the quality of surface runoff from other areas of the city that support similar land uses and is expected to be an improvement to the existing surface runoff water quality. Thus, this impact would not be significant.

Mitigation Measure 12H4-3. (Less Than Significant). None required.

Impact 12H4-4. Tidal Flooding (Project/Significant). A Major New Site at Mission Bay could be subject to tidal flooding due to low elevations at Mission Bay and due to rising sea levels.

Although no portions of Mission Bay lie within the 100-year floodplain, portions may lie beneath the elevation of the 100-year high tide, and could expose structures to flooding during the 100-year high tide. The 100-year high tide has a chance of occurring once every 100 years. The 1990 *Mission Bay FEIR* made the following conclusions on potential flooding at Mission Bay that are applicable to Major New Site development at Mission Bay:

- If structures or roadways were placed at elevations at or below six feet above mean sea level after settling on the site, they could be subject to flooding during the 100-year high tide. As the elevation of part of Mission Bay is below six feet mean sea level, certain areas would be subject to flooding if there are no mitigating factors incorporated into site design.
- If sea levels were to rise, flooding would occur more frequently. Changes in sea level have been constant and gradual over the past 5,000 years. Recent studies by the Environmental Protection Agency, however, indicate that a global warming trend will lead to an acceleration in the rise of sea levels worldwide. According to a report prepared by the San Francisco Bay Conservation and Development Commission, the mean sea level at the Presidio would rise 0.43 foot (5.16 inches) by the year 2006, and 0.65 foot (7.8 inches) by the year 2036.³⁴

Mitigation Measure 12H4-4. (Less Than Significant). For all development within the Major New Site at Mission Bay, UCSF would protect low-lying areas from a potential rise in sea level through setbacks from the water's edge, increased elevation, and other methods as addressed in the Mission Bay Design Guidelines.³⁵

The above mitigation measure revises Mitigation Measure L.15 found in the *Mission Bay Mitigation Monitoring Program*.

1. Thomas Reid Associates, *Brisbane General Plan Technical Studies*, May 1992, p. IV-5.

2. City and County of San Francisco, Department of City Planning, *Executive Park Development Plan Amendment Subsequent Final Environmental Impact Report*, SCH No. 76070571, October 17, 1985, pp. 66-67.
3. Thomas Reid Associates, *Brisbane General Plan Technical Studies*, May 1992, p. IV-1.
4. Federal Emergency Management Agency, National Flood Insurance Program, Flood Insurance Rate Map, City of Brisbane, California, San Mateo County, Community-Panel Number 060314 0001 B, March 29, 1983.
5. Thomas Reid Associates, *Brisbane General Plan Technical Studies*, May 1992, pp. IV-8 - IV-9.
6. City and County of San Francisco, Department of City Planning, *Executive Park Development Plan Amendment Subsequent Final Environmental Impact Report*, SCH 76070571, October 17, 1985, p. 136, and EIP Associates, Field Survey, October 4, 1994.
7. Henry Anderson, Chief of Hydraulics Section, San Francisco Department of Public Works, telephone conversation with EIP Associates, June 13, 1994.
8. Thomas Reid Associates, *Brisbane General Plan Technical Studies*, May 1992, p. IV-3.
9. Seacor, *Brisbane Baylands – Contaminants in Soil and Groundwater*, April, 1994. This is a summary based on review of the Levine•Fricke Draft Remedial Action Plan, October 16, 1992; and the Kleinfelder Associates *Solid Waste Water Quality Assessment Test Report Brisbane Landfill, Brisbane, California*, August 10, 1992.
10. Kleinfelder, Inc., *Solid Waste Water Quality Assessment Test Report, Brisbane Landfill, Brisbane, California*, August 10, 1992, pp. 45-49.
11. City and County of San Francisco, Department of City Planning, *Executive Park Development Plan Amendment Subsequent Final Environmental Impact Report*, SCH No. 76070571, October 17, 1985, p. 67.
12. Kleinfelder, Inc., *Solid Waste Water Quality Assessment Test Report, Brisbane Landfill, Brisbane, California*, August 10, 1992, pp. 45-49.
13. Regional Water Quality Control Board, San Francisco Bay Region, *1995 Basin Plan Update*, March 15, 1995, p. III-7.
14. Frank Filice, Principal Analyst, Planning and Permitting, Department of Public Works, City and County of San Francisco, telephone conversation with Rita Lee, EIP Associates, November 20, 1995.
15. City of Alameda, *Harbor Bay Isle: A Residential/Industrial Development on Bay Farm Island, City of Alameda, Final Environmental Impact Report*, January 1974.
16. City of Alameda, *Addendum to Final Environmental Impact Report for Harbor Bay Isle, Alameda, California*, April 1989.
17. City of Alameda, *Storm Drain Block Book 1994*, rev. September 1, 1994.

18. City of Alameda, *Harbor Bay Isle: A Residential/Industrial Development on Bay Farm Island, City of Alameda, Final Environmental Impact Report*, January 1974, p. IV-203.
19. Hallenbeck & Associates, *Preliminary (Phase I) Environmental Site Assessment, Portions of the Harbor Bay Isle Business Park, Alameda, California*, October 18, 1991, p. 2.
20. Ed Sommerauer, Associated Civil Engineer, City of Alameda, letter to EIP Associates, April 10, 1995.
21. City of Alameda, *Harbor Bay Isle: A Residential/Industrial Development on Bay Farm Island, City of Alameda, Final Environmental Impact Report*, January 1974, p. IV-204.
22. City of Alameda, *Harbor Bay Master Plan Revisions Draft Environmental Impact Report*, November 1984, pp. IV.77, IV.80.
23. Hallenbeck & Associates, letter to Doric Development re: *University of California - San Francisco Research Facility at Harbor Bay Isle, Alameda, California*, October 23, 1992; with Attachment: letter to Doric Development re: *Preliminary Environmental Site Assessment Portions of the Harbor Bay Isle Business Park, Alameda, California*, October 18, 1991.
24. Ed Sommerauer, Associated Civil Engineer, City of Alameda, letter to EIP Associates, April 10, 1995.
25. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, Sec.VI.L.
26. Dames and Moore, *Preliminary Report - Geotechnical Consultation, Mission Bay Development, San Francisco*, April 15, 1982 as found in City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.L.5.
27. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.L.4.
28. Dames and Moore, *Geotechnical Consultation, Mission Bay Project*, December 1, 1982, as found in City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.L.5.
29. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.L.5.
30. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, pp. VI.L.7-VI.L.9.
31. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, pp. VI.L.8-VI.L.9.
32. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, pp. VI.L.1-VI.L.43.

33. San Francisco City Planning Commission, Resolution No. 12040, Attachment A, *Mission Bay Findings*, September 7, 1990, (amended September 13, and September 20, 1990).
34. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, pp. VI.L.19.
35. City and County of San Francisco, Department of City Planning, *Mission Bay Plan, Proposal for Adoption*, as amended September 1990.

I. VEGETATION AND WILDLIFE

This section describes vegetation and wildlife occurring at each of the Major New Sites and addresses the potential presence of sensitive species of plants and animals and sensitive habitats at each of the Major New Sites. It also discusses the potential for impacts to biological resources as a result of development of the Major New Site, and identifies mitigation measures to avoid or reduce the severity of impacts found to be significant. Those impacts would be similar to effects of buildout of business park or research and development uses designated in approved plans for those sites, regardless of project sponsor.

1. DEVELOPMENT SCENARIO

a. Impacts and Mitigation Measures

Impact 12I1-1. Aquatic Habitat and Organisms (Construction/Significant). Construction of the Major New Site would increase storm water run-off, which in turn would increase erosion which leads to increased sedimentation and contaminants in receiving water bodies. This would degrade and contaminate aquatic habitat and adversely affect marine species, and would, therefore, be a significant construction impact at any of the three Major New Site locations.

Increases in run-off from construction of urban development projects increase erosion which in turn leads to increased sedimentation and contaminants that degrade receiving water bodies, such as wetlands or the San Francisco Bay.¹ Excessive sediment and siltation can adversely affect aquatic life by interfering with photosynthesis, respiration, growth and reproduction. Non-point loads of hydrocarbons (oil and grease) from urban run-off can be toxic to fish and other aquatic organisms. Heavy metals such as lead, zinc, cadmium and copper are toxic to aquatic organisms, and accumulate in the food web. Nutrients in urban run-off can accelerate growth of algae, causing depressed dissolved oxygen levels to the detriment of fish and aquatic animals. Plant debris, street litter, animal excrement and other organic substances in urban run-off also increase the oxygen demand, reducing availability to aquatic animals.

Mitigation Measure 12I1-1. (Less Than Significant). UCSF would implement Mitigation Measure 12H1-1 (see Section H, Hydrology and Water Quality), that requires development and implementation of a Storm Water Pollution Prevention Plan in connection with development of the Major New Site.

Implementation of a Storm Water Pollution Prevention Plan (Mitigation Measure 12H1-1, Section H, Hydrology) would reduce water quality impacts from erosion, run-off, and associated sedimentation and contaminants to a less than significant level during construction of the Major New Site. This mitigation measure would also reduce significant impacts to aquatic habitat and organisms to a less than significant level.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Brisbane Baylands

Most of Brisbane Baylands site was artificially created with bay fill and generally supports non-native plant and animal species. Wildlife observed on the site include non-native bird species and animal species characteristic of vacant urban sites. No occurrences of sensitive plant species at the Brisbane Baylands site are reported in the California Natural Diversity Data Base (CNDDB) and none would be expected because of the history of fill and the highly disturbed condition of the site. However, the Brisbane Baylands site would provide potential habitat in the form of freshwater wetlands (drainage ditches and depressions) for three sensitive species that have been observed in the vicinity of the Brisbane Baylands site: the San Francisco garter snake, the California red-legged frog and the San Francisco forktail damselfly. In addition, the CNDDB lists observations of four different sensitive species of butterfly on San Bruno Mountain to the southwest of Brisbane Baylands and Executive Park. Suitable habitat for these species does not occur at Brisbane Baylands.

Vegetation

Vegetation on the site consists of weedy urban grassland comprised of non-native annual grasses and forbs including slender wild oat (*Avena barbata*), sweet fennel (*Foeniculum vulgare*), and wild radish (*Raphanus sativus*). Tree tobacco (*Nicotiana glauca*) is a non-native shrub which occurs in the grassland. Himalayan blackberry (*Rubus discolor*) and cotoneaster (*Cotoneaster* sp.) are non-native shrubs observed on the site. Non-native urban vegetation, including weedy grassland and brush occur along Bayshore Boulevard and Tunnel Avenue.

Wildlife

Wildlife observed on the site during a site reconnaissance include mourning doves and rock doves (pigeons). Other bird species usually occurring on vacant urban sites such as Brisbane Baylands would be expected to occur on the site, including golden-crowned and white-crowned sparrows (winter residents), house finches and Brewer's blackbirds. Small mammals that would be expected to occur on the site, although no mammals were observed include mice, voles, rats, California ground squirrels, rabbits, Botta's pocket gophers, opossums, raccoons and skunks.

Wetlands

Wetlands Research Associates, Inc., conducted a wetland delineation of the Brisbane Baylands site for the owners, Tuntex Properties, Inc. The US Army Corps of Engineers (Corps) reviewed and used it for an official wetlands jurisdictional determination in 1993. The Corps claimed jurisdiction over several depressions which become inundated during high tides or after heavy

storms, and a tidal channel running east and west on the former landfill site between Tunnel Avenue and the bay, for a total of 8.01 acres of jurisdictional wetlands (see Figure 12-17).

The depressions support primarily freshwater marsh vegetation such as cattails (*Typha latifolia*), bulrush (*Scirpus acutus*), rabbit foot grass (*Polypogon monspeliensis*) and arroyo willow (*Salix lasiolepis*). The tidal channel, which consists of about 1.2 acres of the total delineated wetlands area, supports salt marsh vegetation, primarily pickleweed (*Salicornia virginica*).

The wetland delineation prepared for Tuntex Properties, Inc., did not cover the railyard area, but two connecting drainage ditches, totaling about 0.4 acres, were excavated many years ago near the western boundary of the railyard area. These ditches support freshwater marsh vegetation and are also considered as jurisdictional wetlands by the Corps.² It is likely that a third channel would be considered a jurisdictional wetland due to freshwater wetland characteristics similar to the two drainage ditches discussed above. This third ditch crosses the south end of the railyard area from east to west, with a total area of about 0.1 acre. Two drainage ditches excavated since February 1993 run east-west through the middle of the railyard area (not shown on Figure 12-17) are not considered jurisdictional wetlands by the Corps.³

Sensitive Species

Plants

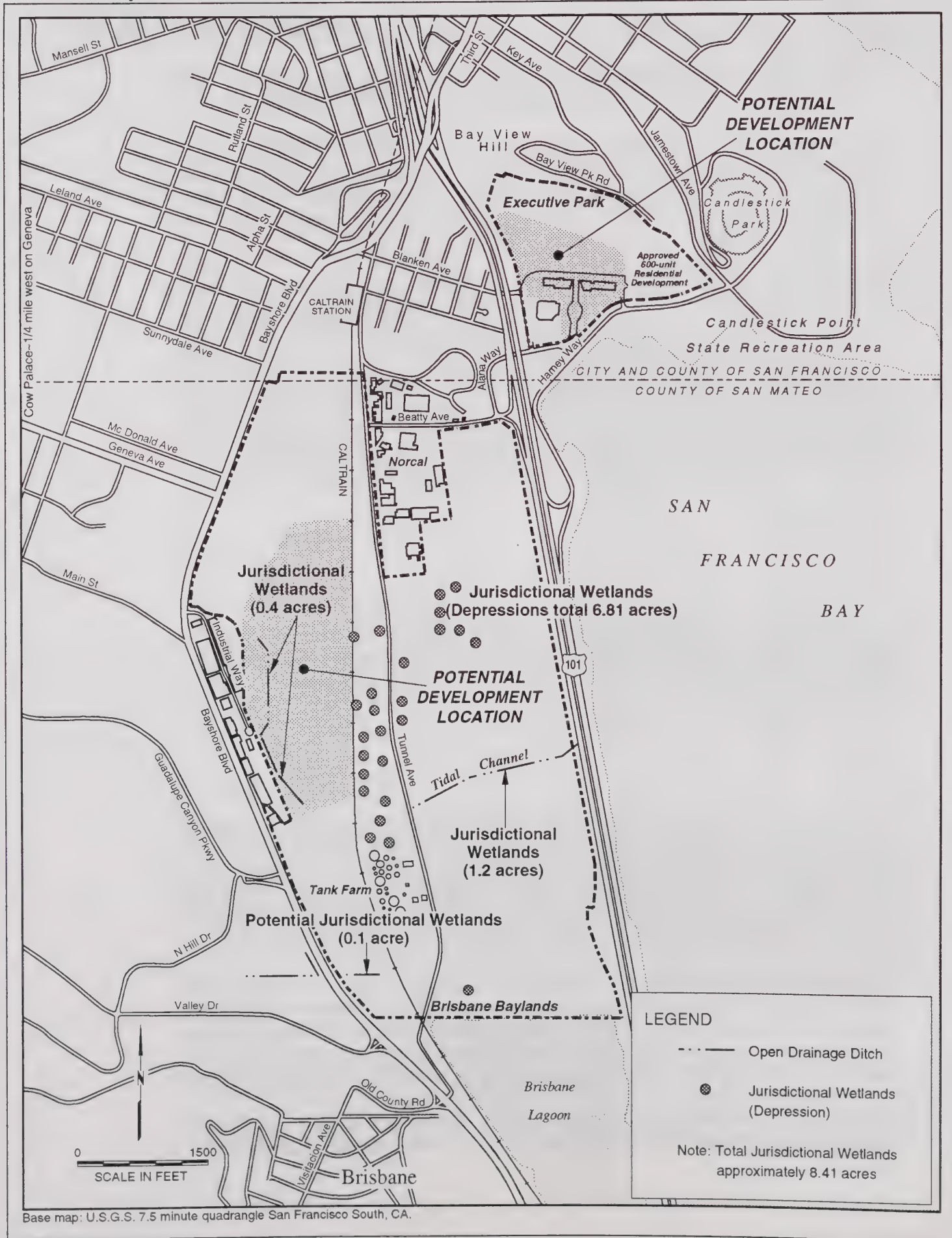
The CNDDDB has not reported any occurrences of sensitive plant species on or in the vicinity of Brisbane Baylands. No sensitive plant species were observed during a site reconnaissance in October 1994, and none would be expected due to the highly altered and disturbed nature of the Brisbane Baylands.

Animals

Freshwater wetlands (drainage ditches and depressions) on the Brisbane Baylands site provide potential habitat for three sensitive animal species: San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), the California red-legged frog (*Rana aurora*) and the San Francisco forktail damselfly (*Ischnura gemina*). This habitat, and occurrences of these species in the vicinity of the Brisbane Baylands site, as discussed below, indicate that any of these species could be present on the Brisbane Baylands site itself.

The San Francisco garter snake, a federal and state-listed endangered species, is known to occur in freshwater wetlands (including drainages) in the vicinity of US 101 near the San Francisco International Airport, about five miles south of the Brisbane Baylands.⁴ Although the species is not known to occur on the Brisbane Baylands site, no garter snake surveys have been conducted on the site, and the freshwater wetlands could possibly be occupied by the species.⁵

The freshwater wetlands also could be habitat for the California red-legged frog. This frog species, a major prey source for the San Francisco garter snake, occupies similar freshwater



Source: Wetlands Research Associates, 1993.

marsh habitats and are also known to occur at the airport site.⁶ The frog has been proposed for federal endangered listing, and the US Fish and Wildlife Service (USFWS) is expected to publish a final listing as soon as the Presidential moratorium on new listings is lifted.⁷

The San Francisco forktail damselfly is a relative of the dragonfly. It was previously listed as a Category 1 candidate for federal listing⁸ and subsequently listed as a Category 2 candidate,⁹ and recommended in at least one technical report for threatened or endangered status.¹⁰ The USFWS recently deleted the Category 2 designation, and is now referring to the damselfly as a Species of Concern. These are species for which USFWS is trying to obtain information to determine if they should be listed or not.¹¹ As a Species of Concern to a resource agency, the damselfly would be considered a sensitive species for this EIR analysis.

The San Francisco forktail damselfly was documented in 1989 as occurring in a marsh near the former Southern Pacific railyard. This marsh has dried in the summer during recent years, and as a result the damselfly may survive only in parts of a nearby channel.¹² Although the damselfly has not been documented in those locations recently, all permanent freshwater and brackish wetlands on the Brisbane Baylands site are considered suitable habitat and could be occupied by the damselfly.¹³ The damselfly was also documented in 1987 as occurring in the marsh surrounding the Brisbane Lagoon, to the south of the Brisbane Baylands site. This area includes one of the largest known populations of the damselfly.¹⁴ The primary threats to the damselfly are urbanization and channeling of creeks. Maintenance, including channel cleaning and vegetation removal, remove shelter for young and egg-laying substrates for females.

Although some salt marsh vegetation exists on the Brisbane Baylands site, it is not anticipated that this vegetation would support the salt marsh harvest mouse, which is a federal- and state-listed endangered species. The salt marsh vegetation is not sufficiently well developed or extensive enough to support the salt marsh harvest mouse which requires large expanses of dense pickleweed and well-developed northern coastal salt marsh habitat.

Executive Park

The Executive Park site supports non-native plant and wildlife typical of a partially developed urban site. The site presently does not support any sensitive plant species, nor would it be expected to do so due to the high degree of disturbance of the natural environment on-site. The CNDDDB lists observations of four different sensitive species of butterfly on San Bruno Mountain to the southwest of Brisbane Baylands and Executive Park. None of these species has been observed at Executive Park, and none would be expected because there is neither suitable habitat nor primary food host plants there.

Vegetation

The south-facing slope of Bayview Hill at Executive Park has been cut and terraced, and planted with trees, including cypress (*Cupressus* sp.) and Monterey pine (*Pinus radiata*). Little perennial vegetation other than pampas grass (*Cortaderia* sp.) and sweet fennel (*Foeniculum vulgare*) occurs on the slopes. The eastern slope of the hill is sparsely vegetated. The central

part of the slope is vegetated with non-native annual grasses and occasional clumps of pampas grass. The western part of the slope is the most densely vegetated with shrubs, including California native coast buckwheat (*Eriogonum latifolium*) and coyote brush (*Baccharis pilularis*), and the invasive non-native French broom (*Genista monspessulana*). Non-native grasses and forbs occur as understory vegetation. Landscaping on the existing site includes three rows of acacias (*Acacia* sp.) and one row of Lombardy poplar (*Populus nigra* var. *italica*).

Wildlife

During site reconnaissance in October 1994, a red-tailed hawk was observed foraging over Bayview Hill, and gulls and a northern mockingbird were observed in the vicinity of the playfield at Candlestick Point State Recreation Area. No other birds or mammals were observed on the site. Bird species characteristic of urban sites such as Executive Park include golden-crowned and white-crowned sparrows (winter residents), house finches, Brewer's blackbirds, mourning doves and rock doves (pigeons). Small mammals that would be expected to occur on the site include mice, voles, rats, California ground squirrels, rabbits, Botta's pocket gophers, opossums, raccoons and skunks.

Wetlands

No wetlands subject to the jurisdiction of the Corps were observed or expected on the Executive Park site.

Sensitive Species

Plants

Because of extensive grading and filling in the past, prior removal of native vegetation and intensification of human activity, Executive Park does not provide likely habitat for any sensitive plant species. The *Executive Park Development Plan Amendment Subsequent FEIR* notes that two sensitive perennial plant species, coast rock cress (*Arabis blepharophylla*) (a California Native Plant Society [CNPS] List 4 species), and Diablo helianthella (*Helianthella castanea*) (a federal Category 2 candidate and CNPS List 1B species) formerly occurred on, but have been entirely removed from, the Executive Park site.¹⁵ Neither of these species were observed during a field survey in 1984, nor were they observed during a reconnaissance survey in October 1994.¹⁶ Because of the high level of disturbance of the Executive Park site, these species would not be expected to occur on the site.

Animals

No sensitive animal species have been observed or would be expected to occur at Executive Park. Two federal endangered butterfly species, the mission blue butterfly (*Icaricia icarioides missionensis*) and the San Bruno elfin butterfly (*Incisalia mossii bayensis*); one federal threatened butterfly species, the Bay checkerspot butterfly (*Euphydryas editha bayensis*); and the callippe silverspot butterfly (*Speyeria callippe callippe*), proposed for federal listing as endangered, are reported by the CNDDDB to occur on San Bruno Mountain, southwest of Executive Park. The mission blue, San Bruno elfin, Bay checkerspot and callippe silverspot butterflies have not been observed in Executive Park, and none of their primary food host plants were noted at the site during a reconnaissance survey.¹⁷ There is no suitable habitat for these butterflies on the Executive Park site.

b. Impacts and Mitigation Measures

Brisbane Baylands

Impact 12I2-1. Wetlands — Brisbane Baylands (Project/Significant). Development of the Major New Site at Brisbane Baylands could fill or alter freshwater, brackish or salt marshes (depressions and drainage ditches). This would result in losses of wetland habitat and wetland values and would therefore be a significant impact.

The Brisbane Baylands site contains wetlands, some of which the Corps has designated as within its jurisdiction. If development of the Major New Site were to fill or alter freshwater, brackish or salt marshes (depressions and drainage ditches) on the Brisbane Baylands site, this would result in losses of wetland habitat and wetland values and would therefore be a significant impact. It would be possible to determine whether the Major New Site would fill or alter the wetland areas by consulting with the Corps and preparing a map overlay depicting wetlands jurisdiction. Depending upon the exact location of the Major New Site within the Brisbane Baylands site, it may be necessary to update the existing wetlands delineation prepared for Tuntex, Inc., as well as to prepare a delineation for the railyard area of the Brisbane Baylands site that the Tuntex delineation excluded.

Mitigation Measure 12I2-1. (Less than Significant). UCSF would locate and develop the Major New Site to avoid filling or altering freshwater, brackish or salt marshes (depressions and drainage ditches). If avoidance of these areas were not possible, UCSF would seek a Section 404 permit from the Corps. That permit would be likely to include a mitigation measure requiring sufficient replacement of adversely affected habitat values through creation of new wetlands or restoration of degraded wetlands in the vicinity.

Because the Major New Site would occupy only a small portion of the entire Brisbane Baylands parcel, the Major New Site could be located and developed to avoid the wetlands on the Brisbane Baylands site. This would avoid a significant adverse effect.

Alternatively, if placement of fill or drainage of jurisdictional wetlands were proposed for development of the Major New Site, UCSF would be required to seek a Section 404 permit from the Corps prior to construction. During the permitting process, a detailed mitigation plan with site-specific performance criteria to compensate for unavoidable wetland habitat losses would be designed in consultation with the Corps of Engineers, the California Department of Fish and Game (CDFG), and US Fish and Wildlife Service (USFWS).

The plan could include replacement of habitat values through restoration of degraded wetlands in the vicinity of the Major New Site by controlling non-native vegetation and planting native wetland vegetation, cleaning up litter and garbage, improving hydrological functions or water circulation, or other measures to be determined. The plan would also include compensation for loss of wetland habitat. This would ensure no net loss of wetland habitat by creating wetlands in nearby permanent open space areas similar to those affected by development of the Major New Site. New wetlands would be created in a similar manner in which wetlands on the site were created, by excavating depressions or channels and ensuring they become inundated through rainfall, run-off and/or tidal action. Native wetland vegetation would be planted in these areas to ensure replacement of habitat values.

Impact 12I2-2. San Francisco Garter Snake and California Red-Legged Frog — Brisbane Baylands (Project/Significant). Development of the Major New Site at Brisbane Baylands could adversely affect wetlands on-site, which could be occupied by the federally-listed endangered San Francisco garter snake and/or the California red-legged frog (federally proposed for endangered listing). If the species were present, this would be a significant impact.

Freshwater wetlands on the Brisbane Baylands site (drainage ditches and depressions) provide suitable habitat for the San Francisco garter snake (federally-listed as endangered) and the California red-legged frog (federally proposed for endangered listing). If development of the Major New Site were to fill, drain, alter or contaminate these habitats, those species could be eliminated from the site. This would be a significant impact.

Mitigation Measure 12I2-2. (Less Than Significant). UCSF would locate and develop the Major New Site to avoid disturbing wetland habitat potentially occupied by the San Francisco garter snake and California red-legged frog. If avoidance were not possible, UCSF would conduct preconstruction surveys for the San Francisco garter snake and the California red-legged frog. If the species were present, UCSF would develop a mitigation plan in consultation with USFWS and CDFG. The plan would be likely to include collection and relocation of frogs and snakes to suitable, protected wetland habitat. Off-site habitat could need to be restored or created.

Because the Major New Site would occupy only a small portion of the entire Brisbane Baylands parcel, the Major New Site could be located and developed to

avoid disturbance of wetlands on the Brisbane Baylands site. This would avoid a significant adverse effect. Suitable adjacent upland areas also used as habitat by the San Francisco garter snake and the red-legged frog would also be avoided in development of the Major New Site. Alternatively, if avoidance were not possible, UCSF would conduct preconstruction surveys for the San Francisco garter snake and the California red-legged frog. If the species were present, UCSF would develop a mitigation plan in consultation with USFWS and CDFG. The plan would be likely to include collection and relocation of frogs and snakes to suitable, protected wetland habitat. Off-site habitat could need to be restored or created.

Impact 12I2-3. San Francisco Forktail Damselfly — Brisbane Baylands (Project/Significant). Development of the Major New Site could adversely affect wetlands habitat at Brisbane Baylands that might be occupied by the San Francisco forktail damselfly (USFWS Species of Concern), and affect the damselfly population. If this species were present, this would be a significant impact.

Freshwater and brackish marshes associated with drainage ditches and depressions on the Brisbane Baylands site provide suitable habitat for the San Francisco forktail damselfly, a Species of Concern to USFWS. If development of a Major New Site were to disturb their habitat, and if the species were present, this would be a significant effect.

Mitigation Measure 12I2-3. (Less Than Significant). UCSF would locate and develop the Major New Site to avoid disturbing wetland habitat potentially occupied by the forktail damselfly. If avoidance were not possible, UCSF would conduct preconstruction surveys for the San Francisco forktail damselfly. If the species were present, UCSF would develop a mitigation plan in consultation with USFWS and CDFG. The plan would be likely to include collection and relocation of damselfly to suitable wetland habitat.

Because the Major New Site would occupy only a small portion of the entire Brisbane Baylands parcel, the Major New Site could be located and developed to avoid disturbance of wetlands on the Brisbane Baylands. This would avoid a significant adverse effect on potential forktail damselfly habitat.

Alternatively, if disturbance of wetlands were required for development of the Major New Site at Brisbane Baylands, UCSF would complete preconstruction surveys of suitable freshwater or brackish marsh habitat to determine the presence or absence of San Francisco forktail damselfly. If no damselflies were found, and USFWS concurs, no further action would be necessary. If the forktail damselfly were present, UCSF would prepare a mitigation plan in consultation with USFWS and CDFG. The plan would be likely to include collection and relocation of damselfly populations to suitable protected wetland habitat.

3. HARBOR BAY

a. Site-Specific Setting

The Harbor Bay site is located on a peninsula in the City of Alameda on San Francisco Bay. The site was artificially created with bay fill in the 1960s. Adjacent to the site to the south is a saltwater lagoon and San Francisco Bay.

The vegetation and wildlife on the Harbor Bay site are comprised of mostly non-native species, but the site includes some native species associated with disturbed urban sites with grassland and wetland habitat. The California Natural Diversity Data Base (CNDDDB) reports observations of a variety of sensitive plants, habitat for wildlife species and wildlife species in the vicinity of the site. CNDDDB records, and field surveys of the Major New Site conducted in February and December 1995 identified the following habitat and sensitive species on the Major New Site at Harbor Bay: burrowing owls, California horned lark, northern harrier, red-tailed hawks and the San Francisco forktail damselfly.

Vegetation

The site is sparsely vegetated, primarily with non-native plants and some native plants. Non-native plants include annual grasses and forbs, and several species of clover (*Trifolium* spp.). Perennial non-native iceplant (*Capobrotus edulis*) occurs as ground cover. Pampas grass (*Cortaderia* sp.), an invasive introduced ornamental grass, forms dense stands in the portion of the site south of Harbor Bay Parkway and lines ditches and small freshwater ponds north of Harbor Bay Parkway. Coyote brush (*Baccharis pilularis* ssp. *consanguinea*), a native shrub which colonizes disturbed areas, occurs on the site. Other native species include telegraph weed (*Heterothera grandiflora*), observed in grassland, and cat-tails (*Typha* spp.) and small willows (*Salix* sp.) occurring at the edges of the larger ponds.

Wildlife

Weedy urban grassland and wetland vegetation on the portion of the site north of Harbor Bay Parkway provide habitat and food for a variety of small mammal and bird species associated with urban grasslands and wetlands. Black-tailed jackrabbits were observed in grassland. Diggings of Botta's pocket gopher, runways in the grassland created by California voles, tracks and potential burrows of California ground squirrels, probable red fox scat, and numerous large tracks of feral or free-running dogs were observed on the site north of Harbor Bay Parkway. Numerous trails were created cross the site. Birds observed in grassland on the site include mourning dove, western meadowlark, European starling, Anna's hummingbird and Say's phoebe. Predatory birds which forage in grasslands on the site include American kestrel, northern harrier and turkey vulture. Red-winged blackbirds, yellowlegs, mallards and a great blue heron were observed in freshwater ponds and ditches on the site. Tracks of waterbirds were observed in drying rain pools on the south portion of the site. Pacific tree frogs were heard in the vicinity of ditches and ponds.

Wetlands

Approximately 4.5 acres of the site could be subject to US Army Corps of Engineers (Corps) jurisdiction as seasonal wetlands. Storm drainage ditches on the site have wetland characteristics, but the Corps does not claim jurisdiction over these areas, because the ditches were constructed on upland areas and are exempt from regulation under Section 404 of the Clean Water Act.

Sensitive Species

The CNDDDB reports the following sensitive plant species in the vicinity of the Major New Site at Harbor Bay:¹⁸

- Congdon's tarplant (*Hemizonia parryi* ssp. *condgonii*), a federal Category 1 candidate and California Native Plant Society (CNPS) List 1B species last seen south of San Leandro in 1909;
- California sea blite (*Suaeda californica*), a federal endangered and CNPS List 1B species last seen on Bay Farm Island in 1906; and
- Alkali milk vetch (*Astragalus tener* var. *tener*), a CNPS List 1B species last seen on Bay Farm Island in 1937.

Due to the artificial fill nature of the soil and the absence for many years of a source of seed in the vicinity, it is highly unlikely that these or any other sensitive plant species occur on the Major New Site at Harbor Bay.

Sensitive Wildlife Species

There is no suitable saltmarsh habitat on the Major New Site at Harbor Bay for the federal- and state-listed endangered California clapper rail (*Rallus longirostris obsoletus*) and salt marsh harvest mouse (*Reithrodontomys raviventris*), or for the saltmarsh wandering shrew (*Sorex vagrans halicoetes*), a federal Category 2 candidate species.¹⁹

The CNDDDB reports habitat for the California least tern, a federal- and state-listed endangered species, on the Harbor Bay site, but none were observed during a survey for this EIR. The CNDDDB reports the occurrence of nesting California least terns on the north end of Bay Farm Island and at the Metropolitan Oakland International Airport (Oakland Airport) within one mile of the Harbor Bay site. Breeding California least terns were observed at the Oakland Airport in early May 1995.²⁰ Consultation with an expert who is familiar with the site indicates that it is unlikely that least terns would occupy the Harbor Bay site.²¹ Other sensitive wildlife species reported by the CNDDDB for which habitat occurs at Harbor Bay include:²²

- | | |
|--|---|
| ■ Western snowy plover
(<i>Charadrius alexandrinus nivosus</i>) | Federal Threatened,
CDFG Special Concern |
| ■ Burrowing owl
(<i>Speotyto=Athene cunicularia</i>) | Federal Category 2,
CDFG Special Concern |
| ■ California horned lark
(<i>Eremophila alpestris actia</i>) | CDFG Special Concern |
| ■ Northern harrier
(<i>Circus cyaneus</i>) | CDFG Special Concern |
| ■ San Francisco forktail damselfly
(<i>Ischnora gemina</i>) | USFWS Species of Concern |

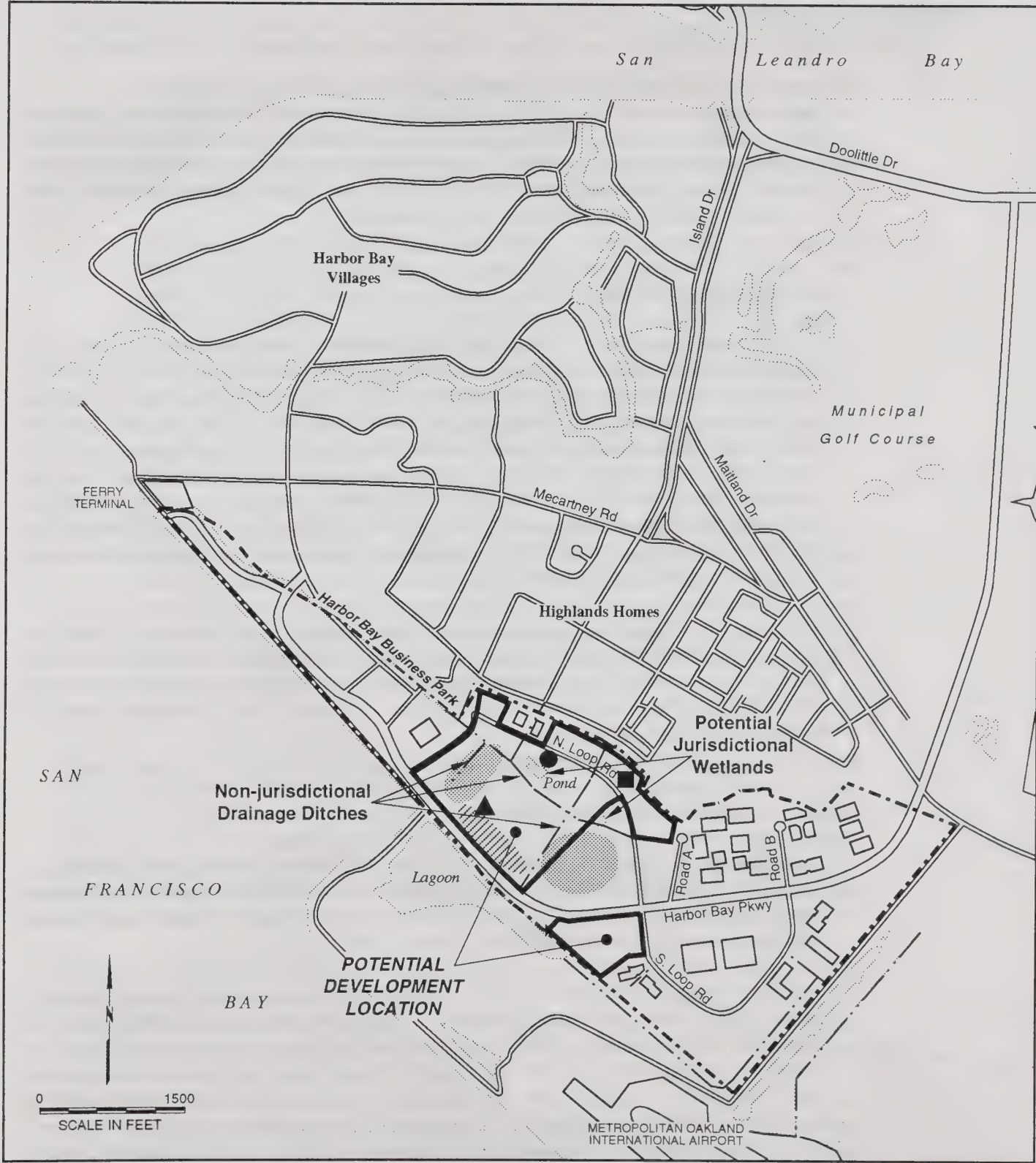
The CNDDDB also reports the occurrence of western snowy plovers on Bay Farm Island, and western snowy plovers have been observed nesting at the Oakland Airport and in open areas in the southwest central portion of the Harbor Bay site as recently as 1994 (see Figure 12-18).

Although a survey conducted on undeveloped portions of Harbor Bay Isle in 1988 did not observe burrowing owls or suitable habitat for burrowing owls,²³ conditions since that time have changed. Site surveys conducted in February 1995 indicated the presence of suitable owl habitat (burrows excavated by California ground squirrels) on the south and west banks of the larger pond in the northern portion of the Harbor Bay site. Broken culvert sections on the south bank also provide suitable habitat. Burrowing owls were observed in the northwestern portion and southeastern portion of the Harbor Bay site in February and December 1995 (Figure 12-18).²⁴

In February 1995, a small flock of California horned larks were observed on the northwestern portion of the Harbor Bay site. Breeding horned larks have been observed at the Oakland Airport.²⁵

In February 1995, two northern harriers were observed foraging on the northern portion of the Harbor Bay site. It has been reported that northern harriers could be breeding on the Harbor Bay site and that red-tailed hawks nest in eucalyptus trees on Bay Farm Island and forage at the Harbor Bay site.²⁶ CDFG considers nesting northern harriers a Species of Special Concern, and nesting raptors are generally protected by the CDFG.

Drainage channels provide potential habitat for the San Francisco forktail damselfly, a relative to the dragonfly. As discussed earlier in Section 2, it was previously listed as a Category 1 candidate for federal listing, subsequently listed as a Category 2 candidate, and currently the USFWS refers to the damselfly as a Species of Concern. Species of Concern are species for which USFWS is trying to obtain information to determine if they should be listed or not. As a species of concern to a resource agency, the damselfly would be considered a sensitive species for this analysis.



Base map: U.S.G.S. 7.5 minute quadrangles Hunters Point, Oakland East, Oakland West and San Leandro, CA.

LEGEND

- Open Drainage Ditch
- Western Snowy Plover, 1992–1994 (Not Surveyed in 1995)
- Burrowing Owl, December 1995

- Wildlife Observed:
- California Horned Lark
 - Red-tailed Hawk
 - Northern Harrier

Casual collections taken from ditches on the Major New Site at Harbor Bay by the Alameda County Mosquito Abatement District on six to eight occasions have yielded no specimens of the San Francisco forktail damselfly.²⁷ However, the damselfly does occur in ditches at the Oakland Airport, and could inhabit ditches at the Harbor Bay site because suitable habitat exists and definitive surveys have not been conducted.

Sensitive Wetlands Habitat

Open storm drainage ditches with wetland characteristics (vegetation, soils and hydrology) and several small, seasonal freshwater ponds occur on the Harbor Bay site. The ditches range from 6 to 10 feet in depth and from 15 to 25 feet in width. These ditches drain into underground storm drains which discharge into San Francisco Bay. When sites in the Harbor Bay Business Park are developed, the temporary open drainage ditches will be replaced with a permanent enclosed storm drainage system. In June 1995, the Corps verified that they would not require a permit for the installation of permanent storm drain outfall structures or for filling in the temporary storm drainage ditches on the Harbor Bay Business Park property because the ditches were constructed on upland areas and are exempt from regulation under Section 404 of the Clean Water Act.²⁸

It is difficult to estimate the area of seasonal wetlands on the Major New Site at Harbor Bay which could be subject to the jurisdiction of the Corps in the absence of a formal delineation. Some shallow temporary pools observed on the site probably would not meet wetland criteria. Excluding temporary pools, the area of wetlands, including drainage ditches and ponds, is estimated to be approximately 4.5 acres.

b. Impacts and Mitigation Measures

Impact 12I3-1. Wetlands — Major New Site At Harbor Bay (Project/Significant). Development of the Major New Site at Harbor Bay could fill or alter freshwater marshes (ponds and drainage ditches). This would result in losses of wetland habitat and wetland values and would be considered a significant impact.

The Harbor Bay site contains areas with seasonal wetland characteristics that may fall under the jurisdiction of the Corps. If the Corps were to take jurisdiction and if development of the Major New Site were to fill or alter freshwater marshes (ponds and drainage ditches), this would result in losses of wetland habitat and wetland values and would therefore be a significant impact. It is likely that development of the Major New Site would disturb or destroy these wetlands. A wetlands delineation would determine whether or not the wetlands would come under the jurisdiction of the Corps and would require a Section 404 Permit. Consultation with the Corps and preparation of a map overlay depicting wetlands area on the site would allow a determination whether the Major New Site would affect wetlands areas.

Mitigation Measure 12I3-1. (Less than Significant). If filling or altering jurisdictional wetlands cannot be avoided, development of the Major New Site

at Harbor Bay would require a Section 404 permit from the Corps. The permit would be likely to require implementation of a mitigation plan to compensate for unavoidable wetland loss, with replacement of habitat values through restoration of degraded wetlands or creation of new wetlands in the vicinity of the New Major Site.

If the Corps were to take jurisdiction of wetlands at the Harbor Bay site, a Section 404 permit would be required from the Corps if development of the Major New Site involved alteration or fill of any wetlands areas. During the permitting process, a detailed mitigation plan with site-specific performance criteria to compensate for unavoidable wetland habitat losses would be designed in consultation with the Corps, CDFG, and USFWS. Mitigation would include replacement of habitat values through restoration of degraded wetlands in the vicinity by controlling non-native vegetation and planting native wetland vegetation, cleaning up litter and garbage, improving hydrological functions or water circulation, or other measures to be determined on a site-specific basis.

Mitigation would also include compensation for loss of wetland habitat to ensure no net loss of wetland area by creating wetlands in nearby permanent open space areas similar to those affected by development of the Major New Site. New wetlands would be created in a similar manner in which wetlands on the site were created, by excavating depressions or channels and ensuring they become inundated through rainfall, run-off and/or tidal action. Native wetland vegetation would be planted in these areas to ensure replacement of habitat values.

Impact 12I3-2. Sensitive Bird Species (Project/Significant). Development of the Major New Site at Harbor Bay could directly affect nesting or foraging populations of listed, candidate, or other sensitive bird species including western snowy plover, burrowing owl, and California horned lark by take of individuals during construction and by removing suitable nesting or foraging habitat. In addition, loss of legally protected, on-site raptor foraging habitat for the northern harrier and red-tailed hawk could increase raptor predation of sensitive nesting birds offsite. This would be a significant impact.

The Major New Site at Harbor Bay contains habitat for sensitive bird species. Sensitive bird species have been observed nesting on the site in 1993, 1994 and 1995. Given the configuration of the Harbor Bay site, it is likely that development of the Major New Site would destroy nesting and foraging habitat for these bird species. This would be a significant impact.

Mitigation Measure 12I3-2. (Less Than Significant). UCSF would conduct preconstruction surveys for sensitive bird species and map the nesting habitat. UCSF would develop species and site-specific mitigation plans, in consultation with USFWS and CDFG, and implement these plans to relocate on-site nesting habitat to adjacent off-site permanent open space areas for the affected bird populations.

UCSF would conduct pre-construction surveys for the presence of breeding western snowy plover, burrowing owl, California horned lark and nesting raptors, and confirm and map nesting and foraging habitat on the Harbor Bay site. If no nesting populations of sensitive bird species were found on or adjacent to the site, mitigation would still be necessary in light of the recent annual observations of nesting sensitive bird species. Mitigation would also be necessary for losses of raptor foraging habitat. Replacement of raptor foraging habitat should be planned in areas sufficiently remote from sensitive nesting bird habitat such that predation would be minimized.

UCSF would develop species and site-specific mitigation in consultation with USFWS and CDFG, to relocate on-site nesting and foraging habitat for the affected bird populations to adjacent off-site permanent open space areas, such as the closed Alameda Naval Air Station (if available). Replacement of nesting habitat for western snowy plover, for example, could consist of creating and maintaining suitable open sandy habitat by locating sandy substrates and controlling dense, non-native vegetation, then planting and maintaining more open native dune vegetation. The replacement nesting area should be closed to people, vehicles and pets during the nesting season, and fenced to keep away predators. A predator control program for the non-native red fox should be implemented because they are a serious threat to the species. USFWS considers this a feasible mitigation measure to reduce impacts to less than significant levels.²⁹

If burrowing owls were found at the Harbor Bay site, suitable habitat could be created in permanent open space in the vicinity by preparing burrows or constructing nesting boxes that resemble burrows and relocating resident burrowing owl individuals to the replacement site from the burrows at the Major New Site.

Impact 12I3-3. Sensitive Off-Site Bird Species (Project/Less Than Significant). Development of the Major New Site at Harbor Bay could indirectly affect nesting populations of sensitive bird species (California least tern and western snowy plover) adjacent to or near the site. These areas are subject to disturbance by activities at Oakland Airport and existing development at Harbor Bay. The increase in activity with development of a Major New Site would not be expected to change these conditions substantially.

Nesting populations of sensitive bird species such as the California least tern and western snowy plover that could occupy areas adjacent to or near the Harbor Bay site could be indirectly affected by human activity and noise during construction, and increased exposure to human activity and feral and domestic animal predation after buildout of the Major New Site. Least terns nest at the Oakland Airport where they have become accustomed to airplane movement and noise, and are near existing human activities at Harbor Bay. These conditions would not be expected to change substantially with development of the Major New Site at Harbor Bay.

Mitigation Measure 12I3-3. (Less Than Significant). None required.

Impact 12I3-4. San Francisco Forktail Damselfly—Major New Site at Harbor Bay (Construction/Significant). Development of the Major New Site could fill or alter freshwater wetlands on site, and thereby adversely affect the San Francisco forktail damselfly (USFWS Species of Concern). This would be a significant impact.

Existing freshwater marshes associated with ponds and drainage ditches on the Major New Site at Harbor Bay provide suitable habitat for, and may be occupied by, the San Francisco forktail damselfly, a Species of Concern to USFWS. If suitable damselfly habitat cannot be avoided during development of the major New Site, losses or disturbance of occupied damselfly habitat and resulting impacts to damselfly populations would be considered a significant impact.

Mitigation Measure 12I3-4. (Less than Significant). UCSF would locate and develop the Major New Site at Harbor Bay to avoid disturbing wetland habitat potentially occupied by the forktail damselfly. If avoidance were not possible, UCSF would conduct pre-construction surveys for the San Francisco forktail damselfly. If the species were present, UCSF would develop a mitigation plan in consultation with USFWS and CDFG. The plan would be likely to include collection and relocation of damselfly to suitable wetland habitat.

4. MISSION BAY

a. Site-Specific Setting

The Major New Site at Mission Bay supports a range of non-native plant species and native and non-native wildlife species. It includes the China Basin Channel, which supports a minor amount of wetland vegetation. No sensitive plant or wildlife species are known to exist on the site.

Vegetation and Wildlife

The Major New Site at Mission Bay is an urban setting developed for industrial uses including rail yards, truck terminals, construction-related operations, warehouses and maritime activities. Much of the area is vacant. Open areas of the site are vegetated predominantly with non-native, annual species of grasses and forbs. The Mission Bay planning area encompasses the entire China Basin Channel. A minor amount of wetland vegetation in the form of a fringe of pickleweed (*Salicornia virginica*) occurs above the high tide line on the unlined, dirt banks of China Basin Channel. Non-native annual grasses and forbs common to disturbed urban areas occur on the channel sides above the pickleweed. Animal life observed on the site during a field survey on June 10, 1994, included domesticated rock dove (pigeon) and muscovy duck, and common native bird species including mourning dove,

mallard and killdeer. Other species of native waterbirds would be expected to occur in the channel, including egrets, herons and ducks.

Sensitive Habitat and Sensitive Species

Pickleweed, which occurs as a narrow fringe on the China Basin Channel banks, is an indicator species for northern coastal salt marsh, a sensitive habitat. Dense stands of pickleweed provide habitat for the salt marsh harvest mouse, a federal- and state-listed endangered species. However, northern coastal salt marsh habitat is not sufficiently well-developed or extensive enough at Mission Bay to support the salt marsh harvest mouse which requires large expanses of dense pickleweed and well-developed northern coastal salt marsh habitat.

The California brown pelican, a federal- and state-listed endangered species, is occasionally present in the area, as are peregrine falcons, a federal-listed endangered species. No rare or endangered fish are known to inhabit the waters of the China Basin Channel or San Francisco Bay near Mission Bay. Pacific herring, a species of commercial importance harvested for their roe, spawn in the vicinity of the Bay shoreline at the mouth of the channel during December through March.

b. Impacts and Mitigation Measures

Impact 12I4-1. Sensitive Species/Habitat (Project/Less Than Significant). Development of the Major New Site at Mission Bay would not eliminate or damage sensitive species and sensitive habitat; therefore it would not create a significant impact.

Neither CNDDDB nor the *Mission Bay FEIR* identified sensitive habitat, including wetlands, or sensitive plant or animal species within the Mission Bay planning area. None were observed during the site survey for this EIR. California brown pelicans and peregrine falcons occasionally visit the Mission Bay area. However, they forage over wide areas and do not nest in the vicinity of Mission Bay. Due to a long history of industrial use, the undeveloped portions of Mission Bay provide little habitat value for wildlife. Therefore, development of the Major New Site which avoids sensitive habitat along Mission Creek would be less than significant.

Mitigation Measure 12I4-1. (Less Than Significant). None required.

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1. Storm Quality Task Force, *California Storm Water Best Management Practice Handbooks*, 1993.
 2. Rob Lawrence, Biologist, Regulatory Division, San Francisco District, US Army Corps of Engineers, telephone conversation with EIP Associates, February 13, 1996.
 3. Rob Lawrence, Biologist, Regulatory Division, San Francisco District, US Army Corps of Engineers, telephone conversation with EIP Associates, February 13, 1996.

4. California Department of Fish and Game, Natural Diversity Data Base. *Harbor Bay Rare Find Report* (USGS San Leandro 7.5 min. Quadrangle), December 13, 1995.
5. Sam McGinnis, Ph.D., herpetologist, California State University, Hayward, telephone conversation with Richard Nichols, EIP Associates, March 14, 1996.
6. Sam McGinnis, Ph.D., herpetologist, California State University, Hayward, telephone conversation with Richard Nichols, EIP Associates, March 14, 1996.
7. Kelly Geer, herpetologist, US Fish and Wildlife Service, telephone conversation with Richard Nichols, EIP Associates, March 4, 1996.
8. *Federal Register*, May 22, 1984.
9. *Federal Register*, January 6, 1989.
10. John E. Hafernik, Jr., *Surveys of Potentially Threatened Bay Area Water Beetles and the San Francisco Forktail Damselfly: Final Report*, US Fish and Wildlife Purchase Order 10120-87-00352, June 1, 1989.
11. Kelly Geer, herpetologist, US Fish and Wildlife Service, telephone conversation with Richard Nichols, EIP Associates, March 4, 1996.
12. John E. Hafernik, Jr., *Surveys of Potentially Threatened Bay Area Water Beetles and the San Francisco Forktail Damselfly: Final Report*, US Fish and Wildlife Purchase Order 10120-87-00352, June 1, 1989.
13. John E. Hafernik, Ph.D. Professor of Biology, San Francisco State University, telephone conversation, February 26, 1996.
14. California Department of Fish and Game, Natural Diversity Data Base, *Harbor Bay Rare Find Report*, December 13, 1995.
15. US Department of the Interior, Fish and Wildlife Service, *National List of Plant Species That Occur in Wetlands: California (Region O)* May 1988.
16. City of Brisbane, *1994 General Plan*, June 21, 1994.
17. City and County of San Francisco, Department of City Planning, *Executive Park Development Plan Amendment Subsequent Final Environmental Impact Report*, SCH No. 76070571, October 17, 1985.
18. California Department of Fish and Game, Natural Diversity Data Base, *Harbor Bay Rare Find Report*, December 13, 1995.
19. California Department of Fish and Game, Natural Diversity Data Base, *Harbor Bay Rare Find Report*, December 13, 1995.
20. Leora Feeney, Principal, Biological Field Services, consultant to the Port of Oakland, telephone conversation with EIP Associates, May 11, 1995; letter to EIP Associates, December 15, 1995.

21. Leora Feeney, Principal, Biological Field Services, consultant to the Port of Oakland, telephone conversation with EIP Associates, December 29, 1995.
22. California Department of Fish and Game, Natural Diversity Data Base, *Harbor Bay Rare Find Report*, December 13, 1995.
23. Roger Harris, Principal, LSA Associates, letter to EIP Associates, May 27, 1988.
24. Leora Feeney, Principal, Biological Field Services, consultant to the Port of Oakland, telephone conversation with EIP Associates, May 11, 1995.
25. Leora Feeney, Principal, Biological Field Services, consultant to the Port of Oakland, telephone conversation with EIP Associates, May 11, 1995.
26. Leora Feeney, Principal, Biological Field Services, consultant to the Port of Oakland, telephone conversation with EIP Associates, May 11, 1995.
27. Wesley Maffei, entomologist, Alameda County Mosquito Abatement District, telephone conversation with EIP Associates, January 3, 1996.
28. Max R. Blodgett, Chief, Construction Operations Branch, US Army Corps of Engineers, San Francisco District, letter to Barry Aidan, Harbor Bay Associates, June 20, 1995.
29. David Wright, ornithologist, USFWS, telephone conversation with EIP Associates, March 4, 1996.

J. PUBLIC SERVICES

This section examines the potential environmental effects on public services which could result from development of a Major New Site. Impacts are assessed based on the Major New Site's proposed user population of 9,100 total employees (an average daily population of 8,250), and 2.65 million gsf of research, academic, support and related space (see Chapter 2, Project Description). Projected demands on public services that would occur regardless of site are analyzed in the Development Scenario and site-specific impacts are analyzed on a site-specific basis for Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay.

This section assesses impacts and identifies mitigation measures for the Major New Site regardless of its location. Most effects of development of a Major New Site on public services are addressed in this Development Scenario section. Demands on fire services are site-specific and are therefore analyzed for each Major New Site location.

1. DEVELOPMENT SCENARIO

a. Impacts and Mitigation Measures

Impact 12.II-1. Police Services (Project/Less Than Significant). Development of the Major New Site would add an average daily population of 8,250 persons to the UCSF Police Department's (UCPD) service population, a 36 percent increase. UCPD would develop a plan for services at the time the Major New Site is developed. UCSF uses at a Major New Site would not be expected to create substantial service demands on local police agencies at any of the Major New Site locations. This would not be a significant impact.

As discussed in Chapter 3, Regional Setting, Section J, the UCPD has exclusive and primary responsibility for UCSF-controlled properties. The UCPD serves UCSF's average daily population of 23,000 persons with 1.1 police officers per 1,000 persons.¹ The UCPD would require additional resources to meet the public safety needs of the Major New Site. This EIR analysis assumes, consistent with the LRDP Goal to maintain a safe environment at all facilities, that UCSF would develop effective services and provide the required police resources for the Major New Site. To maintain a ratio of about 1.1 officers per 1,000 population, the UCPD would need approximately nine patrol persons and associated support staff, vehicles, equipment and building space to maintain existing service levels. The UCPD would develop a plan for services and required resources at the time the Major New Site is developed.

UCPD would also enter into a Memorandum of Understanding with the local police agency (or agencies in the case of a Major New Site at Brisbane Baylands/Executive Park) in the jurisdiction where the Major New Site is located, establishing jurisdictional boundaries and mutual aid responsibilities for UCPD and the local police agency. UCSF uses at a Major New Site would not be expected to create substantial service demands on local police agencies at any of the Major New Site locations.

Mitigation Measure 12.II-1. (Less Than Significant). None required.

Impact 12.II-2. Parks and Recreation (Project/Less Than Significant). The Major New Site's average daily population of about 8,250 persons would increase demand on a local jurisdiction's park and recreational resources; this would not be a significant effect because the Major New Site would include open space and recreational facilities.

UCSF employees at the Major New Site would increase the demand for open space and parks and recreation uses. The Major New Site would include plazas, walkways and a fitness facility. Therefore, park and recreation demands from UCSF users would be met on-site at the Major New Site. The Major New Site facilities would also be accessible to the surrounding community. The Major New Site's average daily population would not be expected to substantially increase demand on any local jurisdiction's park and recreational resources. This would not be a significant effect.

Mitigation Measure 12.II-2. (Less Than Significant). None required.

Impact 12.II-3. Schools (Project/Less Than Significant). The Major New Site's 9,100 total employees could increase enrollments in local school districts through Allen Bill enrollments and the development of new housing in the vicinity. This would not be expected to increase enrollments beyond the capacity of local School Districts due to existing school capacity and each District's discretionary authority to limit enrollments under the Allen Bill.

The Major New Site could affect school enrollments in two ways. First, the Major New Site's 9,100 employees could increase the number of students in the school districts serving the Major New Site because parents/guardians have the right under the Allen Bill to enroll their children in school districts near their places of employment. The Allen Bill requires school districts to accept these students; however, they also have the discretionary authority to limit transfers to maintain enrollments at or below their service capacity. Therefore, Allen Bill transfers would not exceed the district's capacity. Second, the LRDP calls for UCSF to provide an additional 96 family student spaces and 248 single student spaces at or near the Major New Site. Some of the student occupants of this housing could have school-age children and this could increase demand for school enrollment in the vicinity of the Major New Site.

The proposed 96 family student units would generate up to a maximum of 38 children.² Assuming conservatively that all 38 children are of school age (K-12), the following ratios can be estimated. Based on standard ratios of school-aged children, an estimated 45 percent of the 38 children (17) would be of elementary school age, 27 percent (10) would be of junior high school age, and 27 percent (10) would be of high school age.³

Since a site for the family student housing would not be chosen until a later date, it is not possible to analyze these impacts on a school-specific basis. However, existing information on schools in the vicinity of the Major New Sites, including Chapter 3, Regional Setting, for the San Francisco Unified School District indicates that elementary schools could accommodate

38 more K-6 students now and in the future.⁴ Since the increase in enrollments would not be substantial, and would not require the construction of a new school or new classrooms, the impact would not be significant.

Mitigation Measure 12J1-3. (Less Than Significant). None required.

Impact 12J1-4. Solid Waste Disposal (Operation/Less Than Significant). The Major New Site's average daily population of 8,250 persons would generate up to 1,350 tons of solid waste annually which would be directed to the Altamont or the Ox Mountain landfills. This small increase in the solid waste stream to either landfill would not require development of substantial new landfill capacity. This would not be a significant impact.

The Major New Site's average daily population of 8,250 persons would generate approximately 1,350 tons of solid waste annually. By 2000, the solid waste diversion rate would be at least 50 percent for institutional uses.⁵ The actual amount of UCSF's solid waste that would be disposed in landfills would be approximately 675 tons annually, or less. This small increase, in the total amount of solid waste disposed at Altamont Landfill and Ox Mountain Landfill would not require the expansion or development of substantial new landfill capacity and therefore would not be a significant effect.⁶

Mitigation Measure 12J1-4. (Less Than Significant). None required.

Impact 12J1-5. Solid Waste Disposal (Construction/Significant). Construction activities at the Major New Site could increase solid waste volumes to landfills that might require substantial expansion of planned landfill capacity, and this would be a significant impact.

Construction of the Major New Site would generate construction waste. Conventional solid waste collection and disposal companies such as Sunset Scavenger and Golden Gate Disposal do not collect and transport construction solid waste. As a result, UCSF would need to contract with specialized solid waste haulers to transport the solid waste associated with demolition and construction at the Major New Site. In general, there is a lower diversion rate for recycling of commercial/industrial construction and demolition waste than for other solid waste.⁷ Construction and demolition waste generated by the LRDP's construction of the Major New Site could contribute to the needs for expansion of planned landfill capacity. This would be a significant impact.

Mitigation Measure 12J1-5. (Less Than Significant). UCSF would require construction contractors to provide information in their bids on the amount of recycling they plan to achieve, and to document the amount of recycling achieved at the end of each construction project.

To reduce impacts to less than significant levels, UCSF would consult with the County's Commercial Recycling Coordinator (or equivalent) and require construction contractors to provide construction waste recycling plans as part of their bids. UCSF

would seek to increase to the extent feasible the recycling of such solid waste during the LRDP's demolition and construction activities.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Fire Protection

Brisbane Baylands

The Brisbane Fire Department is the primary fire prevention and suppression service provider in the City of Brisbane. Its service population consists of 3,200 residents. The department operates out of its new fire station on Bayshore Boulevard near Valley Drive.⁸ The Fire department is staffed with 15 full-time and 14 part-time personnel. The department keeps one engine staffed with at least three firefighters on duty at all times. This level of staffing produces an existing service level of one (0.9) on-duty firefighter per 1,000 city residents. The department has recently entered into an agreement with Daly City to provide mutual automatic aid for structural fires in designated areas and participates in the San Mateo County Greater Alarm Response Plan.

Fire departments normally also provide Hazardous Materials Response Units to respond to hazardous materials spills or fires. The San Mateo County Department of Environmental Health in conjunction with the South County Fire Protection Authority provides this service for Brisbane. The closest Hazardous Materials Response Unit is located north of Redwood City and would be able to respond to a hazardous materials incidents in Brisbane within 20 to 30 minutes. This emergency response would be a backup to the UCSF EH&S department at the Major New Site which would provide the primary response.

Currently, 65 percent of the emergency service calls to the Brisbane Fire Department are for medical assistance. The Brisbane Fire Department makes the initial response while a private medical transport service is contacted for transport services. Emergency response time for fire suppression and medical emergencies from the new fire station to most areas of Brisbane is approximately three minutes,⁹ and the department has set a four-minute response time as its service goal.¹⁰

There is currently no water supply infrastructure serving the Brisbane Baylands.¹¹

Executive Park

The San Francisco Fire Department provides fire protection to Executive Park. First response to the Executive Park area is provided by Battalion 10 and it has sufficient resources to serve planned development at Executive Park.¹² The three primary stations serving the Executive Park site are Station 44 at 1298 Girard Street, Station 17 at 1295 Shafter Avenue, and Station 42 at 2430 San Bruno Avenue. The high pressure water system that serves Executive Park is

reported to provide water at 10,000 gallons per minute for fire suppression. (See Chapter 3, Regional Setting, Section J, Public Services, for additional information about the San Francisco Fire Department.)¹³

The San Francisco Fire Department Hazardous Materials Response Unit closest to Executive Park is currently at Station 6 Fire Station at 135 Sanchez Street. The unit will return to their regular location Station 36 at 109 Oak Street. Their response time to the Executive Park portion of the Major New Site would be 25 to 30 minutes. This emergency response capability would back up the UCSF EH&S department at the Major New Site which would provide the primary response.

b. Impacts and Mitigation Measures

Impact 12.I2-1. Fire Protection — Brisbane Baylands (Project/Less Than Significant).

Development of a Major New Site at Brisbane Baylands would increase the potential for fire emergency and medical aid response. The Brisbane Fire Department could serve the Major New Site and the City of Brisbane without reducing city-wide response capacity. This would not be a significant impact.

The Major New Site at Brisbane Baylands would be designed and built with the most current fire safety alarm and suppression features. This would minimize the potential for a major fire. Sufficient water-flow for fire would be developed for the Major New Site and vicinity in conjunction with required infrastructure development that would be consistent with the Uniform Building Code.

If two medical emergency service calls occurred simultaneously, private providers would be called to supplement departmental resources. The Fire Department has reviewed the Major New Site profile and the department expects to be able to serve the Major New Site without substantially reducing its response capacity for fire and medical emergency calls within the city.¹⁴ This would not be a significant impact.

Mitigation Measure 12.I2-1. (Less Than Significant). None required.

Impact 12.I2-2. Fire Protection — Executive Park (Project/Less Than Significant).

Development of the Major New Site at Executive Park would increase the potential for fire emergency response in San Francisco. The impact would be less than significant.

The San Francisco Fire Department (SFFD) could serve the Major New Site at Executive Park with current and planned resources already anticipated for buildout of Executive Park. The Major New Site would not substantially increase fire safety risks nor substantially reduce the SFFD's response capacity because the SFFD has sufficient resources to serve planned development at Executive Park. This would not be a significant impact.

Mitigation Measure 12.I2-2. (Less Than Significant). None required.

3. HARBOR BAY

a. Site-Specific Setting

Fire Protection

The City of Alameda Fire Department provides fire protection to the Harbor Bay area and to the rest of the City of Alameda. The department operates out of four stations. Station 4, at 2595 Mecartney Road, approximately one-half mile from the Harbor Bay site, is the primary response to the Harbor Bay area. Station 1, at 2401 Encinal Avenue, is the secondary response. The Alameda Fire Department is fully staffed with 98 firefighting personnel. The department's service standard is to provide an emergency response to all fire and medical emergencies, to all parts of the community, within 3.5 minutes from notification at least 98 percent of the time. The current average response time of less than three minutes to emergency calls meets the service goal. The Alameda Fire Department has mutual aid agreements with all cities in Alameda County. Water pressure within the vicinity of the Major New site at Harbor Bay meets the fire flow requirements set forth in State Appendix III-AA of the 1991 Uniform Fire Code.¹⁵

Hazardous material response for the City of Alameda is provided both by the Alameda Fire Department and the Alameda County Certified Unified Permit Agency. The fire department provides the initial emergency response and determines if additional hazardous material assessment is required. If it is, the County Hazardous Material Response Unit, located in Alameda, will both identify the hazard (if an unknown spill or leak) and contain it from spreading further. Private contractors are then called in to do the actual clean up. All of these services would be in addition to the UCSF EH&S department at the Major New Site which would provide initial responses.

b. Impacts and Mitigation Measures

Impact 12.I3-1. Fire Protection — Harbor Bay (Project/Less Than Significant). Development of a Major New Site at Harbor Bay would increase the potential for fire emergency and medical aid response. This would not be a significant impact.

The Major New Site at Harbor Bay would be designed and built with the most current fire safety alarm and suppression features. This would minimize the potential for a major fire. The Alameda Fire Department has reviewed the Major New Site profile, and has indicated that the department could serve the Major New Site without adding resources or staff. The department has planned for development at the Harbor Bay Business Park, and existing service levels would not be adversely affected by the increase in service demand.¹⁶ This would not be a significant effect.

Mitigation Measure 12.I3-1. (Less Than Significant). None required.

4. MISSION BAY

a. Site-Specific Setting

Fire Protection

The Mission Bay area is within San Francisco Fire Department's Division 3. The primary stations serving the Mission Bay site are Station 8 at 36 Bluxome Street (with a 3.5-minute response time to the site), Station 29 at 299 Vermont Street (with a 4.5-minute response time to the site), and Station 1 at 416 Jessie Street (with a 3.3 minute response time to the site). Additional stations would assist in fighting a multiple-alarm fire at Mission Bay.

Access to the Mission Bay area for fire and emergency response purposes is considered very good, with the exception of the adjacent waterfront piers. Response times to the area vary by type of incident, but the department reports an average response time of less than three minutes for both fire and non-fire calls.

Several sources of water are available for firefighting in the Mission Bay area. The primary source for water in the area is the low-pressure domestic water from the city water mains, at a pressure of 1,000 gallons-per-minute (gpm). The Auxiliary Water Supply System for Fire Protection, commonly referred to as the "high-pressure system," is exclusively for firefighting purposes at a pressure of 10,000 gpm. A third source of water for firefighting in the Mission Bay area is China Basin Channel or San Francisco Bay itself. Water can be pumped from these sources for firefighting as needed. The SFFD considers the water supply and pressure in the vicinity of the Major New Site to be adequate for the next 15 years.

San Francisco hazardous materials incident response information is provided in Section 2.a - Executive Park.

b. Impacts and Mitigation Measures

Impact 12I4-1. Fire Protection (Project/Less Than Significant). Development of a Major New Site at Mission Bay would increase the potential for fire emergency and medical aid response. This would not be a significant impact.

The Major New Site at Mission Bay would be designed and built with the most current fire safety alarm and suppression features, thereby minimizing the potential for a major fire. The SFFD has reviewed the Major New Site profile and has indicated that the department would serve the Major New Site within its current service capacity. It does not anticipate the need for additional resources to serve the Major New Site at Mission Bay and no reduction in city-wide response capacity would be expected. The *Mission Bay Plan* (within which the Major New Site would be located), anticipated that closed Fire Station 30, at 1300 Fourth Street in Mission Bay, could be renovated and reactivated as residential development in Mission Bay proceeded. If this occurred, it would further improve fire response time in the Mission Bay area. This would not be a significant impact.

Mitigation Measure 12J4-1 (Less Than Significant). None required.

1. This average daily population includes employees, students, vendors, and visitors.
2. Michelle Schaefer, University of California San Francisco, Office of Campus Planning, telephone conversation with Scott Edmondson, EIP Associates, March 3, 1996. An estimate of the family student housing's total children can be made using the current population per household at the Aldea San Miguel Family Student Housing units at the Parnassus Heights site of 2.4 persons per household. Assuming 0.4 children per UCSF family student household, the proposed up to 96 family student units would generate up to 38 children.
3. City of Los Angeles, *EIR Manual for Private Projects*, August 1975, Revised.
4. In Brisbane, the two elementary schools, Brisbane and Panorama, had individual capacities for 360 students and enrollments of 189 and 227, respectively, with the expectation that future enrollment growth will be met with existing capacity. Steven J. Waterman, Esq., Superintendent, Brisbane School District, letter to EIP Associates, July 18, 1994.

The Alameda Unified School District manages 12 elementary schools with total enrollment (K-5) of 6,100 students, and is presently operating at 3.5 percent above capacity, equal to about 214 students. District-wide enrollments (K-12) are estimated at 10,400 students with a capacity of 12,100 students spaces. This level of enrollment yields a surplus capacity District-wide of 1,700 students or 14 percent. Enrollments are expected to decrease with the closure of the Alameda Naval Air Station. Carolina Ferrer, Chief Financial Officer, Business Services, Alameda Unified School District, letter to William Woo, EIP Associates, January 3, 1996.
5. AB 939 requires that 50 percent of solid waste be recovered at transfer stations before disposal at landfills. UCSF's system-wide recycling program is expected to be established prior to buildout of the Major New Site; therefore, a diversion rate of greater than 50 percent could be achieved.
6. The Ox Mountain Landfill is near the City of Half Moon Bay in San Mateo County. It receives about 1.1 million cubic yards per year and has a permit to expand its operation and provide disposal capacity for the anticipated solid waste stream through year 2017. Don Williams, Public Works Department, San Mateo County, telephone conversation with Erik Olsen, EIP Associates, August 31, 1994.

The Altamont Landfill accepted 1.5 million tons of solid waste in 1994. It had a remaining refuse capacity of 18.9 million tons expected to last until 2006. Plans are underway to substantially expand capacity, and this would allow the landfill to serve communities in Northern California, outside of the Bay Area. Joanne Manson, Planner, Alameda County Waste Management Authority, telephone conversation with William Woo, EIP Associates, January 3, 1996.
7. The majority of the solid waste deposited into landfills is generated by the commercial/industrial sector. Approximately 10 to 30 percent of all solid waste generated in the United States and Canada is construction and demolition waste.

8. Scott W. Kenley, Fire Chief, City of Brisbane Fire Department, letter to Erik Olsen, EIP Associates, July 29, 1994.
9. City of Brisbane, *General Plan Environmental Impact Report*, SCH No. 93071072, June 21, 1994.
10. Scott W. Kenley, Fire Chief, City of Brisbane Fire Department, letter to Erik Olsen, EIP Associates, July 29, 1994.
11. City of Brisbane, *General Plan Environmental Impact Report*, SCH No. 93071072, June 21, 1994.
12. Paul Fuhrman, Public Information Officer, San Francisco Fire Department, telephone conversation with EIP Associates, October 3, 1994.
13. Bonnie Bamberg, Director of Planning and Public Relations, Tuntex Properties Inc., letter to Erik Olsen, EIP Associates, October 25, 1994.
14. Scott W. Kenley, Fire Chief, City of Brisbane Fire Department, letter to Erik Olsen, EIP Associates, July 29, 1994.
15. Michael Devlin, Fire Marshal, Alameda Fire Department, memo to Erik Olsen, EIP Associates, June 1, 1995, and telephone conversation with William Woo, EIP Associates, January 2, 1996.
16. Michael Devlin, Fire Marshal, Alameda Fire Department, letter to Erik Olsen, EIP Associates, June 1, 1995, and telephone conversation with William Woo, EIP Associates, January 2, 1996.

K. UTILITIES AND INFRASTRUCTURE

This section examines the potential environmental effects on utilities and infrastructure of developing a Major New Site. Impacts on water supply and distribution, wastewater collection and treatment, and electricity and natural gas supply and infrastructure are assessed based on the Major New Site's estimated user population, square footage and land use information (see Chapter 2, Project Description, for more detail). In summary, the main characteristics of the Major New Site that would create demand for public services would be the total 9,100 employees, the average daily population of 8,250 (accounting for absences, travel or off-site assignments), and the 2.65 million gross square feet (gsf) of building area. Projected demands on utilities are analyzed as required with respect to the existing conditions at each of the potential Major New Sites: Brisbane Baylands/Executive Park, Harbor Bay and Mission Bay. The Major New Site's effects on utility demands would be similar to those that would result from any other uses designated for the proposed sites, regardless of the project sponsor.

1. DEVELOPMENT SCENARIO

The Development Scenario estimates the total utility demand associated with the Major New Site regardless of location, but defers the impact and mitigation assessment for water and wastewater treatment to the site-specific sections because the assessment of those impacts relates to existing baseline conditions that vary at each site. The section continues with Development Scenario impact assessment and mitigation for electricity, natural gas and energy consumption resulting from construction vehicles and commuters. These impacts and mitigation measures would apply to the Major New Site at any location and are not repeated in the site-specific subsections.

a. Utility Demand

UCSF staff prepared the estimates of Major New Site demand for water, wastewater treatment, electricity and natural gas.¹ In summary, the Major New Site would require the following utility resources:

- Water: 0.51 million gallons per day, or 571 acre-feet per year.
- Wastewater: 0.46 million gallons per day average dry weather flow (ADWF).
- Electricity: 61.5 megawatt-hours (MWh) per year.
- Natural gas: 543 million cubic feet (cf) per year.

b. Impacts and Mitigation Measures

Impact 12K1-1. Electricity and Natural Gas Demand (Project/Less Than Significant). At full buildout, the Major New Site would require approximately 61.5 MWh of electricity annually and approximately 543 million cf of natural gas annually. Because this would not be a substantial increase in demand nor require substantial development of new supplies of electricity or natural gas, the impact would be less than significant.

Major New Site Utility Demand

Electricity

Projected average electrical demand for the Major New Site would be approximately 61.5 MWh annually. If PG&E were to provide electricity to all the Major New Sites, (except Harbor Bay), the increase in electrical demand from the Major New Site would represent a 0.06 percent increase over PG&E's 1994 total electrical generation capacity of approximately 102.8 billion kWh (see Chapter 3). Development of the Major New Site would include a central utilities plant similar to that of the Parnassus Heights site. Upon completion, the central utilities plant would generate most of the electricity required for operation of the Major New Site. It is possible that the Major New Site could be dependent on outside electricity providers in certain emergency or peak-demand situations. PG&E has reviewed this demand and indicated that this increase, at peak demand, would not represent a significant impact on their reserve margin, and would not require an increase in available system capacity.² See discussion below of the Major New Site Utilities Plant.

Natural Gas

The Major New Site average natural gas demand would be approximately 543 million cf at buildout of the Central Utilities Plant. This increase in demand would be about 0.1 percent increase over the total natural gas demand in PG&E's service area of approximately 431 billion cf in 1994. PG&E has indicated that it would be able to accommodate this additional demand through its existing natural gas supply system.³

City of Alameda Bureau of Electricity

The Bureau of Electricity, a municipal electric utility, manages electrical service in the City of Alameda. The Bureau purchases electricity from the Western Area Power Agency (WAPA), that sells power from federal facilities such as the Central Valley Project and the Northern California Power Agency (NCPA).⁴ In addition, the Bureau is a participant of NCPA's Interconnection Agreement with PG&E which provides transmission and support.⁵ NCPA develops electricity supply through geothermal and hydroelectric sources and purchase contracts.

The Alameda Naval Air Station, which will close in 1997, is currently Alameda's largest electricity customer, and uses one-third of the Bureau's electricity supply. Therefore, closure of the Naval Air Station will result in a surplus of electricity supply in Alameda.⁶ In 1996, the projected electricity demand for the City of Alameda is about 473 million kWh. By the year 2010, the demand is expected to increase to approximately 560 kWh.⁷ The Bureau purchases electricity on an as-needed basis based on projected demands. Therefore, electricity supply is flexible and could support foreseeable increases in demand.

The electrical demand for the Major New Site at Harbor Bay of 62.7 million kWh would represent a 13 percent increase over the City of Alameda's 1996 demand (see Table 12-19), and about 11 percent of the projected electrical demand of approximately 560 million kWh in 2010. However, the demand of the Major New Site is included in the city's projections of demand in 2010 through the assumption of buildout of Harbor Bay Business Park. See discussion below of the Major New Site Utilities Plant.

Major New Site Utilities Plant

The Major New Site would have, at buildout, a utilities plant to generate most or all of the electricity needed to operate the site. A utilities plant would reduce Major New Site electrical demand, and it would use natural gas to fuel the electrical generators. The 2.65 million gsf of the Major New Site would be approximately 72 percent of the total square footage of the Parnassus Heights site. Therefore, natural gas demand for a utilities plant at the Major New Site would be approximately 543 million cf annually (72 percent of the projected annual gas demand at the Parnassus Heights Central Utilities Plant).

Conformance With Energy Conservation Codes

The Major New Site would conform to with Titles 20 and 24 of the California Code of Regulations, and this would ensure that all new construction would be energy efficient. Since the Major New Site's increase in demand for electricity and natural gas would not be substantial, would not cause these resources to be used in a wasteful manner, and would not require substantial additions to supply capacity, this impact would be less than significant.

Mitigation Measure 12K1-1. (Less Than Significant). None required.

Impact 12K1-2. Construction and Operational Vehicle Fuel Consumption (Construction and Project/Less Than Significant). The Major New Site would generate new vehicle trips from construction vehicles, UCSF vehicles such as shuttle buses, and employee and visitor vehicles which would consume gasoline, a non-renewable resource. This use would not be wasteful in the context of expected vehicle fuel efficiencies. This would be a less than significant impact.

Construction vehicles at the Major New Site would use diesel fuel and gasoline. The additional construction vehicle fuel use would not be a substantial increase in fuel consumption. Since construction activities would not be expected to substantially increase fuel consumption or use it wastefully, the impact would not be significant.

The Major New Site would result in diesel and gasoline fuel consumption associated with UCSF vehicles, employees and visitors. The vehicle trips associated with the Major New Site would be a relatively small share of the total increase in trips expected throughout the region, and vehicle are expected to become more fuel efficient. This energy impact would not be significant.

Mitigation Measure 12K1-2. (Less Than Significant). None required.

Impact 12K1-3. Infrastructure — Water, Wastewater, Electricity, Natural Gas (Construction/Less Than Significant). The Major New Site would require a range of on- and off-site infrastructure improvements. This would not be an unusual or substantial change and, therefore, this would not be a significant impact.

The Major New Site would require a standard range of both on-site and off-site infrastructure improvements such as connecting pipelines and mains to service UCSF uses at the site. Proposed infrastructure improvements would not be substantial changes for established utility services in developed urban areas. Utilities are required and empowered to meet demand and fully cover costs from user fees: either those for ongoing service or those for capital costs through developer financing of new capital infrastructure and through one-time hook-up fees for the cost of existing infrastructure. UCSF would be responsible for their fair share of the capital costs as required by AB 1350. Since the Major New Site would not require substantial infrastructure development beyond that normally associated with major development projects in an urban area already possessing existing utility systems, infrastructure impacts at any major new site would not be significant.

Mitigation Measure 12K1-3. (Less Than Significant). None required.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Water

Brisbane Baylands

Two agencies distribute water in the City of Brisbane. The City of Brisbane water system provides water to all residential and commercial users in the city, with the exception of Crocker Industrial Park and other commercial users who are served by the Guadalupe Valley Municipal Improvement District (GVMID) system.⁸ Although the GVMID system is a separate entity, it is also managed by the City of Brisbane. Both the city and the GVMID purchase water from

the City of San Francisco Water Department (SFWD).⁹ Therefore, the SFWD would be the source of water for a Major New Site at Brisbane Baylands.

The 1984 Water Settlement Agreement (Agreement), which governs the allocation of water from the City of San Francisco system to the Bay Area Water Users Association, is valid through 2009. The Agreement divides a maximum average annual metered supply of 184 mgd among the thirty member water agencies of the association.¹⁰ The current allocation for the City of Brisbane Water Department under this agreement is 0.34 mgd. The current allocation for the Guadalupe Valley Municipal Improvement District is 0.31 mgd per day (the contractual allotment under the 1984 Water Settlement Agreement). The likelihood of obtaining a substantial increase in the allotment is considered low.¹¹ Two other contracts grant the GVMID and the City of Brisbane Water Department collectively an additional supply of 0.4 mgd from the San Francisco Water Department. Thus, the total contractual allotment of water for the City of Brisbane, from the San Francisco Water Department and the GVMID, is 1.05 mgd.¹²

Water demand for 1991-1992 in the City of Brisbane was estimated at 0.52 mgd.¹³ Total city-wide water demand is projected to increase by 0.39 mgd over the 1993-2003 period, which includes an estimated increased demand of about 0.9 mgd from development at the Brisbane Baylands.¹⁴ This would bring the total annual demand to 0.91 mgd, leaving a surplus capacity in Brisbane of 0.14 mgd in 2003.

Existing storage capacity in the City of Brisbane system is 747,000 gallons, and the GVMID system has a storage capacity of 1,000,000 gallons. Currently, no water supply infrastructure exists for service to the Brisbane Baylands area.¹⁵

Executive Park

Executive Park is in the City of San Francisco Water Department University Mound Reservoir pressure zone.¹⁶ The University Mound zone has the ability to serve buildings at elevations up to 135 feet above mean sea level. To provide adequate water service to expected development at Executive Park that exceeds this elevation, Tuntex Inc. is supporting construction of a water supply connection to the McLaren Reservoir. Refer to Chapter 3, Section K, Utilities and Infrastructure, for more information regarding the SFWD.

Wastewater

Brisbane Baylands

Wastewater treatment for the City of Brisbane is provided under contract at the City of San Francisco's Southeast Water Pollution Control Plant. The plant has a design capacity of 85 mgd for average dry-weather flows and 210 mgd for peak wet-weather flows.¹⁷ Peak wet-weather flow capacity is being expanded to 250 mgd by 1996.¹⁸ Inflow to this plant currently averages approximately 60 mgd of average dry-weather flow with a remaining capacity of approximately 25 mgd. There are no capacity constraints that would restrict future development in the area served by the Southeast Water Pollution Control Plant.¹⁹

San Francisco has committed to providing the City of Brisbane with up to 6 mgd of average dry-weather flow treatment capacity.²⁰ In 1993, the City of Brisbane generated an average of 0.37 mgd of wastewater, projected to increase by 0.29 mgd by 2003.²¹ Thus, surplus contracted treatment capacity by year 2003 would be 5.34 mgd. Approximately 0.06 mgd of this increased wastewater flow is projected to come from the Brisbane Baylands area. The City of Brisbane Sanitary District and the Bayshore Sanitary District provide wastewater collection and transport infrastructure to the city.²² The Bayshore Sanitary District serves that portion of Brisbane north of Lagoon Way and north of Guadalupe Canyon Parkway. The Brisbane Sanitary District serves the remainder of the city. No wastewater collection infrastructure currently serves the Brisbane Baylands site.²³

Executive Park

Wastewater from the Executive Park area is collected and treated at the Southeast Water Pollution Control Plant. Refer to Chapter 3, Section K, Utilities and Infrastructure, for information regarding wastewater collection and treatment in San Francisco. In summary, the Southeast Water Pollution Control Plant has a surplus capacity of 30 percent for average dry-weather flow and the plant's wet-weather capacity is being expanded by approximately 19 percent. There are no capacity constraints that would restrict future development in the area served by the Southeast Water Pollution Control Plant.²⁴

b. Impacts and Mitigation Measures

Brisbane Baylands

Impact 12K2-1. Water Supply (Project/Significant). The Major New Site at Brisbane Baylands would increase water demand for the City of Brisbane by approximately 0.33 mgd, or 64 percent, at buildout. Other potential development in Brisbane would bring water demand to over 110 percent of capacity. The Major New Site's water demand would be a substantial portion of available water supply capacity in Brisbane, and would be considered a significant impact.

The Major New Site at Brisbane Baylands/Executive Park would include approximately 65 percent of the development at Brisbane Baylands and approximately 35 percent at Executive Park. The Brisbane Baylands site would require approximately 0.33 mgd of the total 0.51 mgd of water that this Major New Site would demand. This 0.33 mgd increase would account for approximately 62 percent of Brisbane's available surplus water capacity of 0.53 mgd. This would be a significant impact.

The City of Brisbane's existing contractual water allotments are approximately 1.05 mgd. Excluding long-term development at the Baylands and Quarry (another potential development site in Brisbane), Brisbane's future water demand is projected at 1.3 mgd. Long-term development at the Baylands alone is projected to require approximately 0.9 mgd.²⁵ In total, long-term water demand would be approximately 2.2 mgd or more (depending on development

at the Quarry site). This increase would exceed Brisbane's existing water allotment by at least 1.15 mgd or 110 percent.

Mitigation Measure 12K2-1. (Significant/Unavoidable). The City of Brisbane could increase available future water supply through various means, including use of reclaimed wastewater for irrigation, use of local groundwater supply sources, and additional contracts for imported water. The City of Brisbane's ability to implement those measures would be speculative. Therefore, this impact would be significant.

Impact 12K2-2. Wastewater Treatment (Project/Less Than Significant). Development of the Major New Site at Brisbane Baylands would generate approximately 0.29 mgd of wastewater, an increase of approximately 78 percent in Brisbane's wastewater demand. Brisbane's surplus contracted treatment capacity at the San Francisco Southeast Water Pollution Control Plant is over 5 mgd. This would not be a significant impact.

Based on the 90 percent return flow factor of water use, the Major New Site would generate 0.29 mgd of average dry-weather flow. This would be a 78 percent increase over Brisbane's existing wastewater flow of 0.37 mgd, to 0.66 mgd. Brisbane's total contracted treatment capacity at San Francisco's Southeast Plant is 6 mgd. This would not be a significant impact.

Cumulative development in the City of Brisbane could generate approximately 2 mgd of wastewater, leaving a surplus treatment capacity of approximately 66 percent. Cumulative wastewater treatment demand could be met through existing surplus capacity.

Mitigation Measure 12K2-2. (Less Than Significant). None required.

Executive Park

Impact 12K2-3. Water Supply (Project/Less Than Significant). Development of the Major New Site at Executive Park would require approximately 0.18 mgd of water, an increase of 0.19 percent over San Francisco's water consumption, and a 0.06 increase over system-wide use. This would not be a substantial increase in water demand and would be served with existing supply without requiring substantial expansion of future supply. This would not be a significant impact.

The Executive Park portion of the Brisbane Baylands/Executive Park Major New Site would include 35 percent of the total development. The Executive Park site would require approximately 0.18 mgd of the total 0.51 mgd water demand for the Major New Site. This additional water demand would represent a 0.19 percent increase over San Francisco's city-wide consumption of 90 mgd, about 0.06 percent of the San Francisco Water Department's system-wide water use. This would not be a significant impact.

Mitigation Measure 12K2-3. (Less Than Significant). None required.

Impact 12K2-4. Wastewater Treatment (Project/Less Than Significant). The Major New Site at Executive Park would generate approximately 0.17 mgd of wastewater. This would represent an increase of 0.28 percent over the existing average dry-weather flow at San Francisco's Southeast Water Pollution Control Plant. This would not be a significant impact.

The Major New Site at Executive Park would generate approximately 0.17 mgd of wastewater, based on a 90 percent return flow of water use. San Francisco's Southeast Water Pollution Control Plant, with an average dry-weather flow of 60 mgd and a design treatment capacity of 85 mgd, treats wastewater from the Executive Park site. The additional wastewater generated at the Major New Site would represent a 0.28 percent increase in average dry-weather flow at the plant. This increase could be met at the plant's 29 percent surplus treatment capacity. This impact would not be a significant impact.

Mitigation Measure 12K2-4. (Less Than Significant). None required.

3. HARBOR BAY

a. Site-Specific Setting

Water

The East Bay Municipal Utility District (EBMUD) provides water to the City of Alameda and is the major provider of water to Alameda and Contra Costa counties, which have an estimated population of 1.2 million people. Currently, EBMUD relies on the Mokelumne River watershed in the Sierra Nevada. Water is brought to the East Bay via aqueducts.

In non-drought years, the "safe" or "firm" yield from the Mokelumne is 200 million gallons per day (mgd). EBMUD's current average water demand is 190 to 195 mgd,²⁶ leaving a surplus firm yield supply of five to ten mgd.²⁷

EBMUD anticipates that water demand will increase at a rate directly proportional to that of population increase, and that water demand will reach 250 mgd by the year 2020, an increase of 28 percent over 25 years.²⁸ Future water resources consist of two possibilities: an additional 125 mgd from the Mokelumne River, and 134 mgd from the American River, totaling up to 459 mgd, although this supply is not assured. In 2020, the projected demand for 250 mgd would consume 54 percent of the anticipated supply maximum of 459 mgd of total supply.²⁹

EBMUD plans to reduce future water demand in its service area by instituting further conservation and reclamation programs. Through the implementation of its Water Conservation Master Plan, EBMUD expects to save over 13 mgd in 2020.³⁰ Through its Water Reclamation Program, EBMUD currently saves approximately 15.5 mgd of water.³¹ EBMUD expects to expand the capabilities of its Water Reclamation Program to save an additional 8.5 mgd in the future, past the year 2020. In total, EBMUD expects to be able to reduce demand by 37 mgd. Thus, total demand in 2020 would be 213 mgd and surplus capacity would increase to 246 mgd, or 54 percent of total supply (459 mgd).

In 1994, average water use in the City of Alameda was about ten mgd, or about five percent of EBMUD system-wide use of 195 mgd.

Wastewater

The City of Alameda is responsible for the wastewater collection infrastructure within the city. EBMUD provides wastewater treatment. EBMUD maintains and operates the interceptor system, pump stations and treatment plants for the transport and treatment of wastewater flow from Alameda, Albany, Berkeley, Emeryville, Piedmont, Oakland and the Stege Sanitary District to EBMUD's Main Wastewater Treatment Plant in Oakland. The plant's dry-weather secondary treatment capacity is up to 120 mgd. The average existing dry-weather flow is approximately 80 mgd, leaving a surplus capacity of 40 mgd. The plant is designed to handle peak wet-weather flows of 415 mgd.³²

Wastewater generated on Bay Farm Island is collected and transported via pump stations and interceptor sewers to the plant. The City of Alameda's average dry-weather wastewater flow is approximately five mgd or six percent of EBMUD's current flows of 80 mgd.³³

b. Impacts and Mitigation Measures

Impact 12K3-1. Water Supply (Project/Less than Significant). The Major New Site at Harbor Bay would increase water demand in EBMUD's service area by 0.51 mgd. This demand could be served within existing capacity of 200 mgd. This water supply impact would not be significant.

The Major New Site at Harbor Bay would use 0.51 mgd of water. This demand would be a 0.26 percent increase over EBMUD's existing demand of 195 mgd, and it would be about 0.9 percent of the additional 55 mgd of demand EBMUD projects by the year 2020. Buildout of Harbor Bay Business Park is part of EBMUD's projection of future demand. Further, the Major New Site would be subject to EBMUD's existing policies and requirements for water conservation as well as EBMUD's anticipated programs in the future. This would not be a significant impact.

Mitigation Measure 12K3-1. (Less Than Significant). None required.

Impact 12K3-2. Wastewater Treatment (Project/Less than Significant). The Major New Site at Harbor Bay would increase average dry-weather flow by 0.46 mgd, an increase of 0.57 percent over EBMUD's existing flows. This would be served with EBMUD's existing 40 mgd surplus treatment capacity. This would not be a significant impact.

The Major New Site at Harbor Bay would generate 0.46 mgd of average dry-weather wastewater flow. This would increase EBMUD's current flows of 80 mgd by 0.57 percent and

would use 1.1 percent of EBMUD's existing surplus treatment capacity of 40 mgd. This would not be a significant impact.

Mitigation Measure 12K3-2. (Less Than Significant). None required.

4. MISSION BAY

a. Site-Specific Setting

Refer to Chapter 3, Section K, Utilities and Infrastructure, for information regarding the regulatory background and existing conditions in the City and County of San Francisco. The following discussion summarizes the key points regarding existing and future service capacity for water supply and wastewater treatment.

Water

The City of San Francisco operates two separate water supply systems in the city. The low-pressure water main system provides water for domestic and commercial uses; the high-pressure system provides fire-flow pressure and volume. No existing water supply problems or constraints have been identified for the Mission Bay area, and all lines are reported to be functioning adequately.³⁴

Wastewater

Sewage in Mission Bay from near China Basin Channel drains to the Channel Street Pump Station at the west end of the channel.³⁵ The Channel Street Pump Station has a capacity of 114 mgd and pumps sewage flows to the Southeast Water Pollution Control Plant.³⁶ This pump station is capable of handling dry-weather sanitary sewer flows and flows generated by minor storms. When the capacity of the pump station is exceeded, the combined sewage is stored in the box sewers along Berry Street, the Embarcadero and Channel Street until the pump station can transport the stored volume. When large storms occur and the storage capacity of the box culverts is exceeded, the sewage overflows into China Basin Channel at seven overflow points. In addition, the Division Street sewer, which stores about one-half of the wastewater volume in the channel area, overflows into China Basin Channel during large storms.

b. Impacts and Mitigation Measures

Impact 12K4-1. Water Supply (Project/Less Than Significant). Development of the Major New Site at Mission Bay would increase water demand by 0.51 mgd, an increase of 0.56 percent of San Francisco's existing use of 90 mgd and 0.2 percent of system-wide use of 240 mgd. This would not be a significant impact.

Development at the Major New Site at Mission Bay would increase water demand by 0.51 mgd of waters, an increase of 0.56 percent over San Francisco's existing use of 90 mgd and 0.2 percent over SFWD's system-wide use of 240 mgd. The San Francisco Water Department has reviewed this demand projection for the Major New Site and concluded that this increase represents a portion of the demand projected for the *Mission Bay Plan* area.³⁷ The Major New Site would be subject to SFWD's existing policies and requirements for water conservation as well as SFWD's anticipated programs in the future. As a result, water use at the Major New Site would be subject to the best available water conservation technology and practices and water would not be used wastefully. The Major New Site's water supply impact would be less than significant because it would not be a substantial increase, would not require further development of unplanned supply and would be subject to SFWD's water conservation requirements so that water would not be used wastefully.

Mitigation Measure 12K4-1. (Less Than Significant). None required.

Impact 12K4-2. Wastewater Treatment (Project/Less than Significant). Development of the Major New Site would increase average dry-weather flow to San Francisco's Southeast Plant by 0.46 mgd, and would use 1.8 percent of the plant's existing surplus treatment capacity of 25 mgd. Since this would not be a substantial increase in AWDF and could be served within existing or planned future capacity, this would not be a significant impact.

The Major New Site at Mission Bay would generate 0.51 mgd of wastewater. This would increase flows to the Southeast Plant of 60 mgd by 0.85 percent and would use 1.8 percent of the plant's existing surplus treatment capacity of 25 mgd.³⁸ It would represent a part of the demand anticipated in the *Mission Bay Plan*. Therefore, this would not be a significant impact.

Mitigation Measure 12K4-2. (Less Than Significant). None required.

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1. Mike Goff, UCSF Facilities Management, memo to EIP Associates, March 22, 1996. Electricity demand projections for the Major New Site are based on approximately 72 percent of actual use at the Parnassus Heights site.
 2. Jim Crane, Industrial Power Engineer, Pacific Gas & Electric Co., telephone conversation with EIP Associates, February 15, 1995.
 3. Jim Crane, Industrial Power Engineer, Pacific Gas & Electric Co., telephone conversation with EIP Associates, February 15, 1995.
 4. City of Alameda, Bureau of Electricity, *Annual Report 1994*, p. 8.
 5. City of Alameda, Bureau of Electricity, *General Plan 1996-2005*, p. III-20.
 6. City of Alameda, Bureau of Electricity, *General Plan 1996-2005*, pp. III-23 to III-24.

7. City of Alameda, Bureau of Electricity, *General Plan 1996-2005*, pp. III-23 to III-24.
8. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, Vol. 1, p. 26.
9. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, Vol. 2, p. 87.
10. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, Vol. 2, p. 88.
11. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994. This assumption is based on total annual demand by the 30 member water agencies before the most recent drought (1986-1992). These pre-drought figures are used because the year 1987 is considered the last "normal" year for water consumption in California, as drought conditions persisted from that time through 1992. During drought periods mandatory and voluntary consumption controls and incentives are employed to reduce consumption to levels below what would otherwise occur. It is unknown at this time whether total demand will return to its pre-drought levels, or whether the demand management measures undertaken during the drought (installation of low-flow toilets, showerheads, etc.) will result in a sustained lower annual demand for water.
12. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, p. 89.
13. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, Table IA-11.
14. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994.
15. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, p. 139.
16. Bonnie Bamburg, Tuntex Properties Inc., letter to Erik Olsen, EIP Associates, October 25, 1994.
17. Department of Public Works, City and County of San Francisco, San Francisco Clean Water Enterprise, *Southeast Water Pollution Control Plant San Francisco*, October 1989.
18. Alexander Mamak, Director of Public Information and Public Participation, San Francisco Clean Water Enterprise, telephone conversation with EIP Associates, August 22, 1994.
19. Richard Giessner, Chief Engineer of Operations, Southeast Water Pollution Control Plant, telephone conversation with EIP Associates, August 23, 1994.
20. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, p. 91.
21. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994.

22. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, p. 24.
23. City of Brisbane, *General Plan Final Environmental Impact Report*, SCH No. 93071072, June 21, 1994, p. 139.
24. Richard Giessner, Chief Engineer of Operations, Southeast Water Pollution Control Plant, telephone conversation with EIP Associates, August 23, 1994.
25. City of Brisbane, *1993 General Plan Draft Environmental Impact Report Volume II: Draft EIR*, January 1994, p. 14.
26. Leo O'Brien, Civil Engineer, East Bay Municipal Utility District, Resource Planning Division, telephone conversation with William Woo, EIP Associates, August 21, 1995.
27. Leo O'Brien, Civil Engineer, East Bay Municipal Utility District, Resource Planning Division, telephone conversation with William Woo, EIP Associates, August 21, 1995. "Safe" or "firm" yield refers to the assured contracted quantity of water.
28. Tak Mizuno, Assistant Civil Engineer, East Bay Municipal Utility District, Water Distribution Planning Division, letter to William Woo, EIP Associates, August 22, 1995.
29. Leo O'Brien, Civil Engineer, East Bay Municipal Utility District, Resource Planning Division, telephone conversation with William Woo, EIP Associates, August 21, 1995.
30. East Bay Municipal Utility District, Community Services Department, *Water Conservation Master Plan Annual Report*, April 1995.
31. East Bay Municipal Utility District, *EBMUD Water Reclamation Program*, 1995.
32. Karl Yakich, Associate Civil Engineer, Wastewater Division, East Bay Municipal Utility District, letter to William Woo, EIP Associates, January 4, 1996.
33. Flavio Barrantes, Engineer, City of Alameda, memorandum to William Woo, EIP Associates, January 4, 1996.
34. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.D.25.
35. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.D.25.
36. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.D.25.
37. Christine Morioka, Resource and Planning Manager, San Francisco Water Department, telephone conversation with Erik Olsen, EIP Associates, February 13, 1994.
38. Richard Giessner, Chief Engineer of Operations, Southeast Water Pollution Control Plant, telephone conversation with EIP Associates, August 23, 1994.

L. VISUAL QUALITY

This section identifies the Development Scenario and Site-Specific effects of the Major New Site on visual quality and aesthetics at Brisbane Baylands/Executive Park, Harbor Bay, or Mission Bay as impacts. It is noted, however, that those impacts would be similar to effects of build-out of business park or research and development uses designated in approved plans for those sites, regardless of project sponsor.

1. DEVELOPMENT SCENARIO

Impacts and Mitigation Measures

Impact 12L1-1. Alteration of Views (Project/Less Than Significant). Development of the Major New Site could alter existing views. This would be a potentially significant impact.

The exact nature of UCSF development contemplated at the Major New Site and the specific location of such development within each Major New Site's area are not known at this time. However, development of the Major New Site would introduce new buildings to the area selected for the Major New Site.

The LRDP's Goals and Objectives include Site Development and Campus Design policies that relate directly to UCSF land use and development of a Major New Site. These include growth consistent with local land use plans, zoning codes, respect for neighborhood plans and concerns, preservation of open space, and views and design of buildings that are compatible with the neighborhood. The Goals and Objectives also address visual quality and impacts, including protection of view corridors, creation of open space, development that is compatible with the surrounding area and consistent with local plans and policies, and creation of a positive, dignified campus identity. Implementation of these guidelines would avoid significant visual effects resulting from development of the Major New Site.

Mitigation Measure 12L1-1. See site-specific mitigation measures later in this section.

Impact 12L1-2. Visual Conflict with Adjacent Uses (Project/Less Than Significant). Development at the Major New Site could create visual conflict with adjacent uses. The Major New Site would include buildings and landscaping consistent with the LRDP's Goals and Objectives. This would result in development having a visual character that respects the visual form of adjacent existing structures, particularly in relation to building height, bulk, massing, materials and landscaping. This would not be a significant effect.

The Major New Site would be approximately 2.65 million gsf of development, including large, multi-story office, research and instruction buildings (including fume hood stacks on

roofs of research buildings) as well as support services, parking lots and garages, maintenance facilities and landscaped areas. This would occur in currently underdeveloped lands in urban areas. Each of the potential Major New Sites is within areas designated for this type of use, and Major New Site buildings would add to the urban character of these areas. Major development has been planned by local jurisdictions at each of the Major New Sites under consideration. UCSF's uses would constitute a portion of the overall development that is contemplated.

LRDP Goals and Objectives indicate that UCSF would establish specific development guidelines prior to the design of the Major New Site. These development guidelines would address building mass, scale, height, screening of rooftop mechanical equipment, floor size, proportion and setback controls consistent with local zoning requirements. The development guidelines would consider the appropriate use of open space, landscaping and lighting. The LRDP Goals and Objectives also address open space areas, retention of views from the Major New Site, and buffering from adjacent uses.

Appropriate design of the height and bulk of UCSF buildings at the Major New Site could provide a transition between existing buildings in adjacent areas and the scale of structures at the Major New Site.

Implementation of the LRDP design policies would ensure compatibility of Major New Site designs with adjacent uses, and would ensure that visual impacts are less than significant.

Mitigation Measure 12L1-2. (Less than Significant). None required.

Impact 12L1-3. Increased Light and Glare (Project/Significant). Development of the Major New Site could increase the amount of light and glare in the Major New Site area. This would be a significant impact.

Glare can be caused by reflections from pavement, vehicles and reflective building materials. Since specific features of the new buildings are unknown at this time, it is assumed for purposes of this EIR that the LRDP could result in buildings with reflective surfaces, such as metal and glass. The resultant glare could affect nearby residential areas, pedestrians and motorists. Additionally, new buildings, parking structures and walkways would introduce new light sources in the Major New Site area. Increased lighting could affect adjacent land uses and motorists. Glare effects could be reduced through building orientation, building material selection and landscaping.

Mitigation Measure 12L1-3. (Less Than Significant). UCSF would minimize light and glare from new buildings at the Major New Site through orientation of buildings, use of landscape materials, and choice of primary facade materials.

The following design standards and guidelines for minimizing light and glare would be followed:

- Glass walls (especially mirrored glass walls) would be avoided as a primary building material for facades.

- Exterior light fixtures would emphasize close spacing of low-intensity light sources that are directed downward to minimize light and glare on adjacent streets and properties.

By regulating the design and configuration of new buildings and the amount of reflective material used in new development, this mitigation measure would reduce the impact to a less than significant level.

Impact 12L1-4. Construction Night Lighting (Construction/Significant). Illumination of construction activities at night could disturb adjacent residential uses. This would be a short-term significant impact.

Construction of the Major New Site would take place over a period of several years and may possibly include construction activities at night. Lighting could be necessary during the night hours and would be considered a temporary disturbance to any adjacent residential areas.

Mitigation Measure 12L1-4. (Less Than Significant). UCSF would require as a condition to construction contracts that flood or area lighting needed for construction activities be placed and directed so as to avoid disturbance of adjacent residential uses.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

The Brisbane Baylands site was created by filling portions of San Francisco Bay. The western portion was filled at the turn of the century, and the eastern portion was used as a landfill from 1933 to 1967 and then covered with inert fill. The area to the west is developed with brick warehouse and industrial buildings. San Bruno Mountain serves as the western visual boundary. US 101 and San Francisco Bay form the eastern visual boundary. The Brisbane Lagoon borders the site on the south. Residential development adjacent to office and warehouse development form the northern visual boundary.

Executive Park is located at the southern boundary of the City and County of San Francisco, immediately south of Bayview Hill and west of the Candlestick Point State Recreation Area and Candlestick Park. The site is bounded on the west by US 101 with the residential neighborhood of Little Hollywood beyond.

Character

Brisbane Baylands

The Brisbane Baylands site is relatively flat, sloping slightly to the north. There is scattered development in the area including a fuel tank farm and fuel distribution facilities, recycling and reclamation activities, former railroad buildings, warehouses and storage buildings.

Railroad tracks run through the area in a north-south direction. The eastern portion, the previous landfill site, contains shrubs and trees around the perimeter. There is also an above-ground pipeline visible near the western boundary of the landfill site.

Executive Park

The Executive Park site is on the southern flank of Bayview Hill. Bayview Hill is steeply sloped, rising from 30 feet to 395 feet in elevation. Executive Park is bounded by US 101 on the west; Candlestick Park and a portion of Candlestick Point State Recreation Area to the east; Bayview Park and Hunters Point neighborhood to the north; and San Francisco Bay to the south.

Executive Park contains office development with two three-story buildings and one four-story building, surface parking lots, access roads and extensive landscaping. The eastern portion of the site is steeply sloped and undeveloped. Portions of the sloped area have been graded, cleared of vegetation and terraced. There are mature eucalyptus and cypress trees scattered throughout the site.

Architecture

Brisbane Baylands

Two historic railroad buildings, the Roundhouse and the Machinery & Equipment Building, which served the former Southern Pacific Railroad yard, are visual landmarks in the Brisbane Baylands area.

Executive Park

The three existing office buildings are contemporary in design. The four-story building has a pre-cast concrete and stucco facade, with dark glass. One of the three-story buildings is a similar design with deep, overhanging facade projections. The other three-story building has a blue-tile/metal panel facade with reflective glass.

Views

The Brisbane Baylands site provides generally unobstructed views of the hillsides of San Bruno Mountain to the south and west and the hills of San Francisco to the north. Policies 16 and 19 of the 1994 *Brisbane General Plan*, Land Use Element, provide for consideration of public views of the Bay and the proximity of San Bruno Mountain, and for assuring that public view corridors remain accessible. Brisbane Lagoon and San Francisco Bay are visible from portions of the Brisbane Baylands site. Figure 12-19 shows the location of selected off-site viewpoints of the Brisbane Baylands and Executive Park site areas.

Views Of The Site

Brisbane Baylands

The Brisbane Baylands site is lower in elevation than most of the surrounding area and is therefore visible from certain points in all directions. From the east, the site is visible when traveling both north and southbound on US 101, although landscape vegetation along US 101 limits the view of the eastern portion of the site. The Brisbane Baylands are also visible from Bayview Hill and Executive Park in San Francisco, northeast of the site. From the south, the site is visible from San Bruno Mountain areas and Brisbane Lagoon (see Figure 12-20). When approaching from the north on surface streets, the site is visible from the elevated areas of San Francisco.

Executive Park

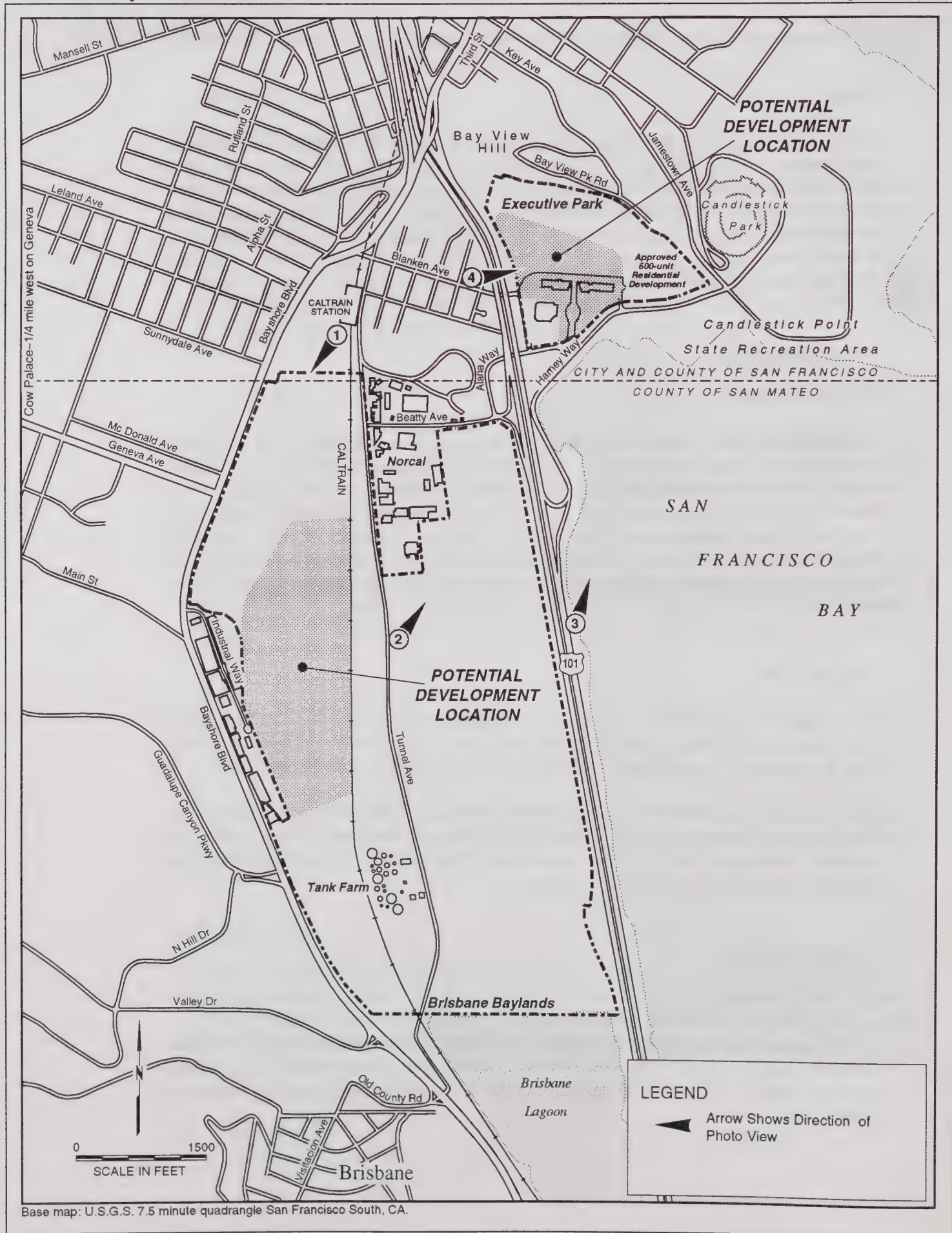
Most of the Executive Park site is visible from the hillside areas in San Francisco to the west and from some of the lower areas of Brisbane (see Figure 12-21). From the Candlestick Point State Recreation Area east of the site, the higher portions of the site are visible.

From the south, Executive Park is visible from San Francisco Bay and from northbound US 101, particularly on the uphill grade near the site. Bayview Park to the north, provides an overview of the entire site. The site is also visible from portions of the Visitacion Valley neighborhood in San Francisco to the northwest.

Views From The Site

Brisbane Baylands

US 101 borders Brisbane Baylands on the east. To the east, beyond US 101, San Francisco Bay is visible from some areas of the site. However, there is dense, mature landscape vegetation along the west side of the US 101 right-of-way that prevents an unobstructed bay view from ground level.



Source: EIP Associates, 1996.



Photo 1: View to southwest of Brisbane Baylands from Bayshore CalTrain Station



Photo 2: View to northeast of Brisbane Baylands near Tunnel Avenue east of Industrial Way



Photo 3: View to north towards Executive Park, Bay View Hill and Candlestick Park from US 101



Photo 4: View to east of Executive Park site and Bay View Hill from west of US 101 (Nueva Avenue)

San Bruno Mountain can be viewed to the west. A small foothill, known as Icehouse Hill, can be seen to the west. Both of these landforms are vegetated, with some trails and visible erosion. Views to the south are of Brisbane Lagoon and residential and commercial development on the hillside of the City of Brisbane. Tunnel Avenue, which traverses the site in a north-south direction, can be seen as it rises into Brisbane.

The southern slope of Bayview Hill and Candlestick Park can be seen to the northeast of the site. Residential/commercial areas on the hillside areas of San Francisco can be seen to the north from the site.

Executive Park

US 101 borders the site on the west and is visible from some areas of the site. Southwest of US 101 are views of Brisbane Lagoon and residential and commercial development in the City of Brisbane. San Bruno Mountain is a major landmark, visible to the west and southwest. The higher elevations of the site provide an unobstructed view of San Francisco Bay to the east and south. The hillside areas of the Little Hollywood neighborhood of San Francisco (between Bayshore Boulevard and US 101, north of the city-county line) can be seen to the northwest from higher portions of the site.

Site-Specific Standards and Methods

City of Brisbane General Plan

The *City of Brisbane General Plan* includes policies addressing visual quality and visual resources, including protection of scenic/natural resources, such as the hillsides, and preservation of open space and view corridors.

The *General Plan's* Land Use Element contains policies regarding preservation and enhancement of public view corridors; siting of new development so that vistas and public view corridors remain accessible, including views of San Bruno Mountain and of the bay; and providing setbacks from Brisbane Lagoon consistent with good planning and conservation practices.

The *General Plan's* Baylands Subarea policies include establishing a safety buffer around and providing visual screening of the Tank Farm; giving aesthetic consideration to views from the Baylands site; and development of design guidelines that incorporate standards for roofs emphasizing color, materials, and screening, in consideration of the views from areas at higher elevations.

Brisbane Municipal Code

The Brisbane Municipal Code contains design review requirements that apply to large-scale projects. The projects are reviewed by the Planning Commission and, if approved, certain

findings related to urban design and compatibility are made by the Commission. The findings specifically provide for a design which gives consideration to the following: the relationship of structures and the site, height, bulk, form, arrangement, texture material, color and appurtenances; the relationship to the immediate area; and the relation to the total setting as seen from key points in the surrounding area. Should the University select and acquire the Brisbane Baylands/Executive Park site, the land would become exempt from local zoning and procedures, however UCSF would seek to work with Brisbane to achieve development compatible with these local guidelines.

San Francisco Master Plan - South Bayshore Area Plan

The *South Bayshore Area Plan* of the *San Francisco Master Plan* contains policies with regard to future development in the South Bayshore area of San Francisco, which includes Executive Park. Because Bayview Hill is one of the most visible natural areas in South Bayshore, policies call for protecting it as a natural and visual resource. The Plan also includes strategies to preserve the upper slopes of Bayview Hill in their natural state and to acquire and develop recreational facilities on the level, lower areas.

b. Impacts and Mitigation Measures

Impact 12L2-1. Alteration of Views (Project/Less Than Significant). Implementation of the Major New Site at Brisbane Baylands would alter existing views in the area, but would not substantially block views of open space or the bay. This would not be a significant effect.

Development of the Major New Site at Brisbane Baylands would introduce new buildings ranging in height from 45 feet to 75 feet, which would alter views of the site seen from surrounding areas. That scale of development for the Major New Site would be consistent with *Brisbane General Plan* policies for the Baylands. New buildings would be visible from areas of Brisbane hillsides and Bayview Hill in San Francisco, from US 101, and bay front areas to the east, and from the Brisbane Lagoon. Actual view changes would depend upon specific project plans.

Residents of the hillside areas would have views of the Major New Site in the Baylands that could partially limit existing views of San Francisco Bay. Long-range views of the bay would still be visible beyond the Baylands development. These changes in private view conditions, while visible to some residents, would not be considered a significant effect on publicly accessible views.

As discussed in the Development Scenario, the LRDP includes Site Development and Campus Design goals and objectives that address visual quality and impacts. These include protection of views and development that is compatible with the surrounding area and consistent with local plans and policies. By following those objectives, the Major New Site at Brisbane Baylands would not have a significant visual effect.

Mitigation Measure 12L2-1. (Less Than Significant). None required.

Impact 12L2-2. Alteration of Views (Project/Less Than Significant). Implementation of the Major New Site at Executive Park would alter existing views in the area, and would add views of buildings and altered topography on the site. It would not substantially change views of the bay from surrounding areas. This would not be a significant effect.

The Major New Site at Executive Park would introduce new buildings ranging in height from 45 feet to 75 feet, and would alter views of the Executive Park site seen from surrounding areas. New buildings would be visible from areas of Brisbane and Bayview Hill, from US 101, from waterfront areas to the east and south, and from hillside areas to the northwest. Actual view changes would depend upon specific plans for the Major New Site.

Residents of the surrounding hillside areas and the public have views of Bayview Hill, an underdeveloped hillside, and the existing office development. With development of the Major New Site at Executive Park, this view would be altered with the addition of up to 75-foot buildings at higher elevations of the site. Grading and excavation for development of the Major New Site and subsequent new building construction would alter the visual character of the site. The new buildings would be prominent when viewed from most directions. However, the design, size, bulk and scale of UCSF development would be similar to the existing and planned development and would not constitute a significant adverse effect.

Mitigation Measure 12L2-2. (Less Than Significant). None required.

3. HARBOR BAY

a. Site-Specific Setting

Harbor Bay Character

The Major New Site at Harbor Bay is undeveloped and generally flat. The area is covered with low-lying grass mixed with sandy soil giving the parcel a dune-like character. The existing Harbor Bay Business Park development to the southeast, residential development to the east, and the San Francisco Bay to the west, form the visual boundaries of the site.

Views

The Harbor Bay site offers extensive, unobstructed views of San Francisco and the Peninsula and San Francisco Bay to the west, and views of the East Bay hills to the east. View corridors

in the area provide foreground and distant background views. Figure 12-22 shows the location of selected on- and off-site viewpoints.

Views Of The Site

The Major New Site at Harbor Bay would be generally located adjacent to the bay and North Loop Road. The site would be viewed from the existing Harbor Bay Business Park development, from the Harbor Bay Parkway and from the residential areas to the north. The view of the site from the northeast is limited due to the flat nature of the area.

Views From The Site

From the Harbor Bay Business Park on Harbor Bay Parkway, foreground views to the east consist of existing two- to four-story Business Park buildings and landscaped areas of lawn and deciduous trees. To the west, there are panoramic views of San Francisco Bay from Harbor Bay Parkway at the site's southern and western edges and across the site from North Loop Road. Views to the north and east from Harbor Bay Parkway and North Loop Road consist of the Highlands Homes residential development in the foreground and the East Bay hills in the distant background (see Figure 12-23).

To the north and east from within the Business Park are foreground views of residences and the existing business park buildings (see Figure 12-23). Distant views of the East Bay hills are available from within the Business Park, along the water's edge with unobstructed panoramic views across the bay. (see Figure 12-24).

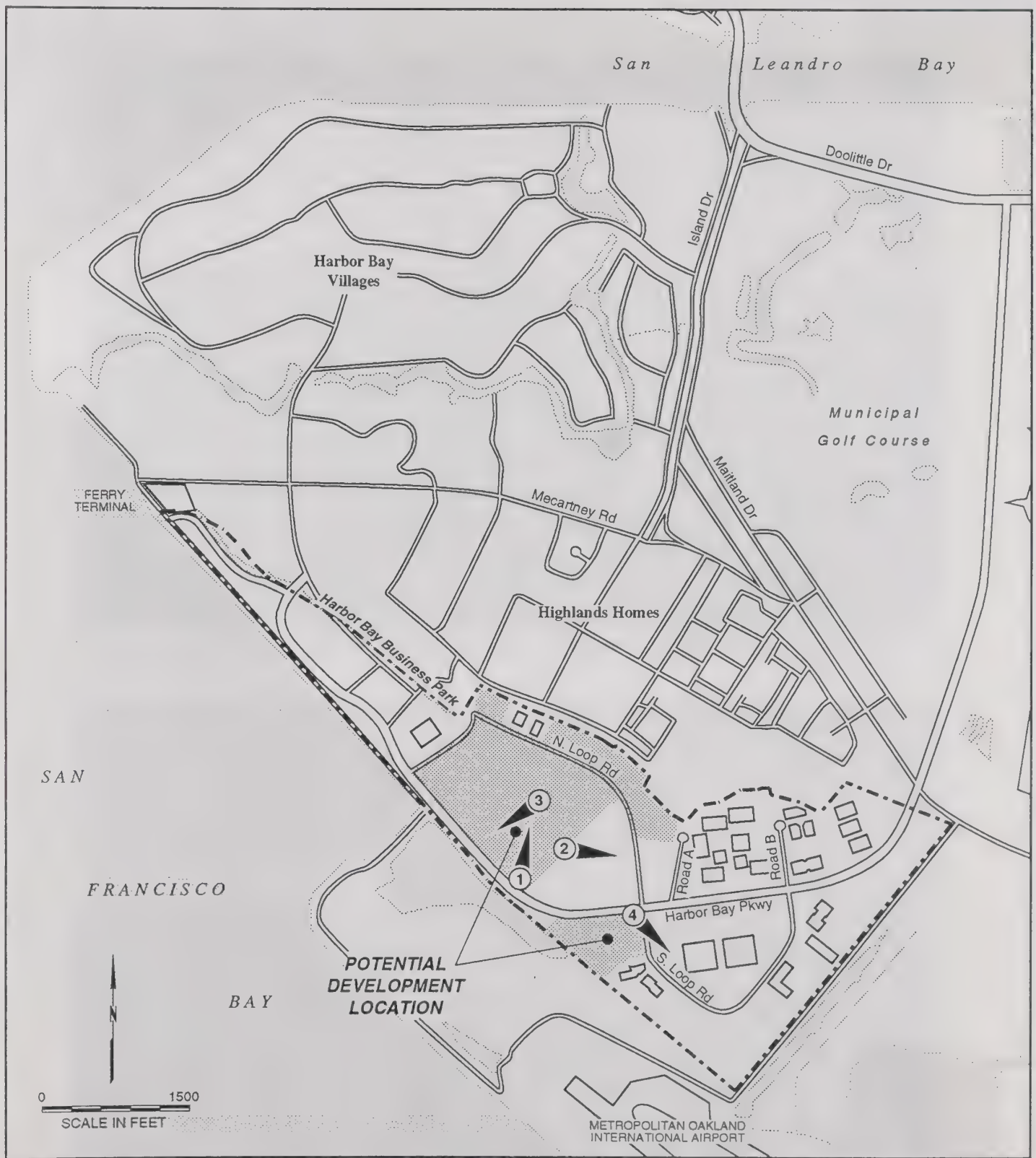
Site-Specific Standards and Methods

City of Alameda General Plan

The *City of Alameda General Plan* includes policies with regard to views and visual quality. The policies most relevant to the Major New Site at Harbor Bay are contained in the City Design Element and in the Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element of the *General Plan*. The following discussion provides a summary of the relevant aspects of these policies.

Several of the City Design Element policies relate to protection of views of the bay, while encouraging quality architectural and landscape design. The policies set forth several design considerations and guidelines to assist in accomplishing these goals. These include measures to maximize views of the water and access to the shoreline, preservation and expansion of the street tree system and the development of landmark structures at prominent locations.

The Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element also contains policies regarding shoreline access and development. These policies relate to the goal of providing visual and physical access to the shoreline and open water and consideration of views from the water. The measures set forth to accomplish these goals include removal of impediments to shoreline access, requiring shoreline access as a condition of approval (where



Base map: U.S.G.S. 7.5 minute quadrangles Hunters Point, Oakland East, Oakland West and San Leandro, CA.

LEGEND

➤ Arrow Shows Direction of Photo View



Photo 1: View to north from Harbor Bay Parkway into undeveloped Harbor Bay Business Park



Photo 2: View to east from Harbor Bay Business Park site to existing business park uses east of North Loop Road



Photo 3: View to southwest from Harbor Bay Business Park to San Francisco Bay and Peninsula



Photo 4: View to southeast from Harbor Bay Business Park existing uses

appropriate) and ensuring that the design review of development projects includes consideration of the view from the water.

The visual character of the Major New Site at Harbor Bay would be similar to that of an office/business park with large buildings. Since the building design or heights are unknown, it is assumed that the Major New Site development would be within the height limits of the city's zoning code. The Illustrative Site Plan (see Figure 12-4 in Section B, Land Use) generally indicates that the Major New Site would be accommodated at Harbor Bay with buildings of a scale envisioned in the city's *General Plan*. The area proposed for future Major New Site uses is currently zoned light industrial and commercial uses (C-M-PD). Uses allowed under this designation include research laboratories and institutions, and other related uses.¹ According to the *Alameda General Plan*, high-rise buildings as tall as 100 feet, by right, and 156 feet, subject to discretionary review, can be built at Harbor Bay.

b. Impacts and Mitigation Measures

Impact 12L3-1. Alteration of Views (Project/Less Than Significant). Implementation of the Major New Site at Harbor Bay could partially obstruct existing views of the San Francisco Bay from surrounding areas. This would not be a significant effect.

UCSF's plans for design of individual buildings at the Major New Site and the specific location of UCSF development within Harbor Bay are not known at this time. However, UCSF development would introduce new buildings in an area that is currently undeveloped, and could obstruct views of the San Francisco Bay and shoreline from the Highlands Homes residential neighborhood, recreational areas and roadways.

Harbor Bay Business Park zoning is for light industrial and commercial uses.² According to the *General Plan*, buildings up to a height of 100 feet are permitted and buildings up to 156 feet in height may be approved with discretionary review.

As discussed in the Development Scenario, the LRDP includes Site Development and Campus Design goals and objectives that address visual quality and impacts. These include protection of views and development that is compatible with the surrounding area and consistent with local plans and policies. By following those objectives, the Major New Site at Harbor Bay would not have a significant visual effect.

Mitigation Measure 12L3-1. (Less Than Significant). None required.

4. MISSION BAY

a. Site-Specific Setting

The Mission Bay site, which was created by filling a portion of San Francisco Bay, is relatively flat with few visual landmarks. Potrero Hill is located to the south and the San Francisco financial district is located to the north. San Francisco Bay serves as the site's eastern visual

boundary, with the elevated I-280 freeway serving as the north and west boundary. The I-280 “stub” from Sixth Street to Third Street was demolished in 1995 (See Figure 2-8 in Chapter 2, Project Description).

Mission Bay Character

The Mission Bay site can be characterized as industrial with large areas of vacant land. The only visual landmarks on site are low-rise warehouse or industrial buildings, elevated freeways and other urban, man-made elements. The Mission Bay site contrasts with the high-rise buildings in the San Francisco financial district to the north and Potrero Hill rising to the south.

China Basin Channel, which extends across Mission Bay from Seventh Street to China Basin and San Francisco Bay, also serves as a visual landmark for the northern portion of Mission Bay. Beginning near Seventh Street, the channel flows under the Fourth and Third Street drawbridges (Lefty O'Doul and Peter Maloney Bridges, respectively) to China Basin and San Francisco Bay. The channel has a varying width from 180 to 280 feet over its 4,000-foot length. The six-story China Basin building, a former warehouse now converted to office uses, is prominently visible along the north side of China Basin Channel between Third and Fourth Streets. A golf driving range is currently located south of China Basin Channel, with high fencing and night lighting.

To the north and northeast of the site, one- to five-story industrial and office buildings are seen along Townsend Street, and along Third Street between Townsend and China Basin Channel. Beyond these low-rise buildings begins the gradual stepping up of structures to the high-rise buildings of the financial district. Other visual landmarks to the north include the Union 76 sign at Fremont and Harrison Streets (which is being converted to the Bank of America sign) and the clock tower at 461 Second Street. To the west is the Showplace Square wholesale center which includes mid-rise buildings with notable brick exteriors.

Views

Mission Bay provides many unobstructed views of visual resources, including San Francisco Bay and East Bay hills to the east, Sutro Tower/Mount Parnassus and Twin Peaks to the west, and Potrero Hill to the south.

Views Of The Site

Views from Potrero Hill south of Mission Bay are of Third and Fourth Street Bridges, China Basin Channel, the China Basin Building, the CalTrain station and tracks, and waterfront pier sheds and docks. The San Francisco financial district, Bay Bridge, East Bay hills, and other distant features, such as downtown Oakland and the University of California campanile in Berkeley, form the more distant views from the South.

From the north and northwest, views of Mission Bay are limited due to existing buildings. From the upper floors of buildings in the financial district, the site is seen in the middleground, adjacent to San Francisco Bay, with the bay, East Bay hills or Potrero Hill in the background.

From the east in the area of China Basin Street, views toward Mission Bay are limited because of the low elevation. Beyond Mission Bay, views of Potrero Hill and Twin Peaks are visible in the distance.

Views From The Site

The Major New Site at Mission Bay could be located at any site or combination of sites within the Mission Bay plan area. A potential site in the southeastern area of Mission Bay is shown on Figure 2-8 in Chapter 2, Project Description. As with most of the Mission Bay area, this area includes characteristic one- to three-story warehouse-type structures. Figure 12-26 displays photographs of existing conditions in Mission Bay (refer to Figure 12-25 for the location of viewpoints). Existing views from Third Street reflect the industrial character with Castle Metals building to the west and RMC Lonestar sand and gravel conveyors to the east (Viewpoint 3). I-280 is seen as the western boundary of Mission Bay. These buildings may be removed as part of Major New Site development. As shown from Viewpoint 1, the site offers views of downtown San Francisco. Distant views of the bay are limited in this area at street-level due to the existing pier buildings. Middleground views of Potrero Hill are clear and unobstructed (see Figure 12-27, Viewpoint 4). These views generally reflect conditions visible from within Mission Bay, regardless of the actual location of the Major New Site.

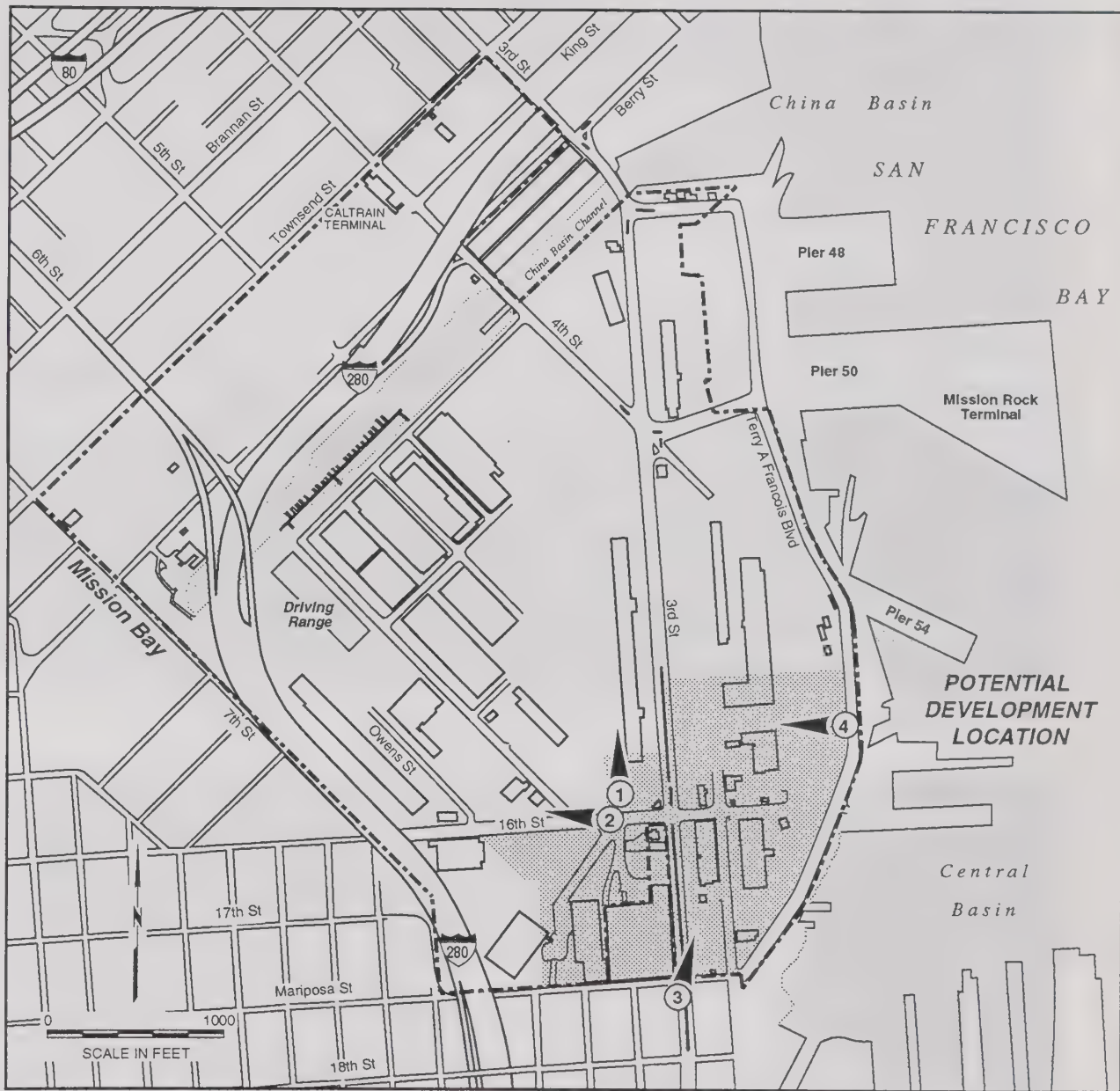
New development at Mission Bay would be visible in recreational areas and to residents of nearby neighborhoods, such as the South Beach Marina and South Beach residential area (north of China Basin and east of Second Street) and to residents of the Potrero Hill area.

Site-Specific Standards and Methods

City and County of San Francisco Master Plan³

The *City and County of San Francisco Master Plan*'s Urban Design Element includes policies with regard to visual quality. These policies were developed to address issues relating to city pattern, conservation, major new development, and neighborhoods. The following discussion provides a summary of the relevant aspects of these policies.

The Urban Design policies relating to city pattern respond to the main objective of protecting and enhancing the natural and man-made visual framework of the city. Policies regarding major views in the city, existing street patterns, open spaces and landscaping, and the special nature of districts in the city are intended to strengthen the city's unique pattern. The policies also encourage recognition of natural boundaries of districts and promotion of the physical links between districts.



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA and Mission Bay Plan.

LEGEND

➤ Arrow Shows Direction of Photo View



Photo 1: View to north from 16th Street east of Sixth Street



Photo 2: View to west from 16th Street east of Sixth Street



Photo 3: View to north from Third Street near Mariposa Street



Photo 4: View to west from Terry A. Francois Boulevard

The Urban Design conservation policies relate to the protection and conservation of natural areas, historical resources and street space. The policies set forth several design considerations and guidelines to assist in accomplishing these goals. These include measures to avoid permanent loss of street areas that not only carry traffic but provide other public benefits such as view corridors, and light and air. Additionally, there are policies to ensure that the character and scale of historical resources and unique areas are preserved.

Specific, comprehensive Urban Design policies relate to major new development, site and architectural design standards. The policies cover such issues as visual harmony, size, bulk and scale. The size, bulk and scale policies are implemented by the regulations of Height and Bulk Districts contained in the San Francisco City Planning Code.

The *San Francisco Master Plan's Central Waterfront Plan* encompasses the Mission Bay site. The *Central Waterfront Plan* includes policies regarding urban design and visual quality in the Mission Bay area. These include policies to protect and create views of the downtown skyline.

The *Mission Bay Plan* includes urban design policies that further refine and expand the *Central Waterfront Plan* and Urban Design policies. The *Mission Bay Plan* design objectives and policies set forth measures regarding urban pattern, visual compatibility, conservation and preservation of resources, and new development.

The *Mission Bay Plan* policies emphasize integration with surrounding areas, protection and creation of major views, and the need for variety and contrast. The goal of these policies is to guide development with an eye towards a sense of neighborhood image. The policies also support development that is compatible and in scale with nearby areas. The Mission Bay policies address the unique geographical and historical setting of this site. The policies put forth measures regarding orientation of development of this site, enhancement of the Bay setting; preservation of the area's historical resources, and incorporation of the existing China Basin Channel houseboat community into new development. The policies also encourage development which retains a reasonable relation to the scale of existing development. Strategies to be used include encouraging preservation of views and access to sunlight, reduction of building heights as development approaches the Bay, and use of varying building heights and forms. The *Mission Bay Plan* incorporates height limits ranging from 45 to 110 feet.

Proposition K - The Sunlight Ordinance

Section 295 of the San Francisco City Planning Code prohibits the issuance of building permits under the jurisdiction of the city for structures that would cast new shadow on property that is either under the jurisdiction of, or designated for acquisition by the Recreation and Park Commission. Permits may be granted if the City Planning Commission determines that the project would have an insignificant adverse shadow impact on the use of such property. Buildings less than 40 feet in height or that would add new shade outside the times of one hour after sunrise to one hour before sunset at any time of the year are exempt from these controls. Section 295 would apply to such open space as may be acquired or developed in Mission Bay. It is unknown at this time where Mission Bay open space would be located and whether it would be under the jurisdiction of the Recreation and Park Commission. UC, as a state entity is

exempt from this local ordinance, but would work with San Francisco, per the LRDP goal, to minimize shadow impacts in the design of the project.

Mission Bay EIR – Mitigation Monitoring Plan

The *Mitigation Monitoring Plan* for the Mission Bay project (September 20, 1990) provides mitigation measures for reducing visual quality impacts that might occur as a result of development of the *Master Plan* alternatives. The mitigation measures for the Mission Bay project are summarized below.

- Adopt urban design guidelines for Mission Bay which would include requirements for variation in building height, bulk, tower separation, mid-block paths or courts, and facade materials.
- Adopt urban design guidelines for Mission Bay which would require adequate sidewalk widths and street lighting and landscaping.
- Develop specific guidelines for landscaping, setbacks, parking location, and screening for locations where residential uses adjoin Service/Light Industrial/Research and Development (S/LI/RD) uses.
- Formulate guidelines for building height, setbacks, and separation of towers for office or S/LI/RD development between Owens Street and I-280 to reduce visual impacts.
- To the extent consistent with other land use considerations and design criteria articulated in the Design Guidelines of the *Mission Bay Plan*, minimize shading of open space through articulation of building faces, setbacks, building separation, tower separation and setbacks, use of mansard or gable roofs, and reduced building heights.
- Minimize shading of open space to the extent feasible, as provided in the Design Guidelines of the *Specific Plan*.

b. Impacts and Mitigation Measures

Impact 12L4-1. Alteration of Views (Project/Less Than Significant). Implementation of the Major New Site at Mission Bay would alter existing views in the area, including obstruction of some views of the bay from residential buildings. This would not be a significant impact.

Development of the Major New Site at Mission Bay would introduce new buildings potentially ranging in height to about 110 feet (consistent with the *Mission Bay Plan*), which would alter views of the Mission Bay area. Although located in a heavily urbanized area, the Mission Bay area is generally undeveloped. New buildings would be visible from areas of Potrero Hill, I-280, waterfront areas to the east of Mission Bay, and from south of Market, Showplace Square

and downtown San Francisco west and north of Mission Bay. Actual view changes would depend upon specific project plans. These effects would be expected to be similar to those of any development consistent with the *Mission Bay Plan*. Depending upon the location within Mission Bay developed with the Major New Site, height districts in the *Mission Bay Plan* may require modification, but no change in permitted maximum height is expected.

Currently, many residents of Potrero Hill have clear, unobstructed views of the bay and East Bay hills in the area of the proposed development. Views of the waterfront are available, but limited by existing development. With development of the Major New Site at Mission Bay, views of the bay may be obstructed by buildings up to 75 feet in height. New buildings would be visible within the overall viewshed, but views of the East Bay would not be obstructed. This would not be a significant effect.

Views of Potrero Hill from across the bay would be obstructed by new development over 45 feet in height.⁴ Views of the downtown San Francisco skyline from the bay, however, would not be obstructed by the Major New Site at Mission Bay because Mission Bay is a notable distance to the south and west of downtown and new development is not anticipated to be of an equal high-rise scale.

As discussed in the Development Scenario, the LRDP includes Site Development and Campus Design goals and objectives that address visual quality and impacts. These include protection of views and development that is compatible with the surrounding area and consistent with local plans and policies. By following those objectives, the Major New Site at Mission Bay would not have a significant visual effect.

Mitigation Measure 12L4-1. (Less Than Significant). None required.

Impact 12L4-2. Increased Shadow Coverage (Project/Less Than Significant). Implementation of the Major New Site at Mission Bay would result in increased shadow coverage. This would not be expected to limit use of open space substantially. This would not be a significant effect.

The Major New Site could be in proximity to planned Mission Bay park/open space area. The extent and duration of shadows cast over these spaces would depend on actual building design, bulk and lot placement and coverage of each specific building. During winter, shadows from buildings to the south of open space could extend into open space during the late morning and afternoon hours, and over more open space in the afternoon. During spring and fall, shadows would be more limited. It is not expected that summer shadows would be substantial between 10:00 am and 3:00 pm, but shadows would extend farther before 10:00 am and after 3:00 pm.⁵

San Francisco City Planning Code Section 295 prohibits the issuance of building permits for structures above 40 feet in height that would generate significant shadow impacts on property under the jurisdiction of, or designated to be acquired by, the Recreation and Park Commission. It is unknown at this time where Mission Bay open space would be located and whether it would be under the jurisdiction of the Recreation and Park Commission. While UC is exempt from this local ordinance, the Site Development and Campus Design section of the LRDP's Goals

and Objectives include policies to design buildings so as to minimize the effects of shadows on the site and surrounding areas. Because buildings at the Major New Site would be designed to respond to these and other related policies, buildings at the Major New Site are anticipated to have limited shadow effects, and new shade from the Major New Site at Mission Bay would not be considered significant.

Mitigation Measure 12L4-2. (Less Than Significant). None required.

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1. Collette Meunier, Planning Director, City of Alameda, telephone conversation with Lezley Buford, EIP Associates, December 18, 1995.
 2. Collette Meunier, Planning Director, City of Alameda, telephone conversation with Lezley Buford, EIP Associates, December 18, 1995.
 3. City and County of San Francisco, Department of City Planning, *San Francisco Master Plan*, n.d.
 4. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.I.33.
 5. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, V.II, p. VI.I.61.

M. CULTURAL RESOURCES

This section identifies the Development Scenario and Site-Specific effects of the Major New Site on cultural resources at Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay as impacts of LRDP development at the Major New Site. Those impacts would be similar to effects of build-out of business park or research and development uses designated in approved plans for those sites, regardless of project sponsor.

1. DEVELOPMENT SCENARIO

Impact 12M1-1. Disturbance of Prehistoric and Historic Archaeological Resources (Construction/Potentially Significant). Construction activities associated with development of the Major New Site could disturb archaeological resources.

With the exception of the Executive Park portion of the Major New Site at Brisbane Baylands/Executive Park and portions of Mission Bay, the potential Major New Sites are generally located in areas created by bay fill placed within the last 150 years. Since these areas were historically under water, it is not likely that deposits relating to prehistoric Native American occupation would be found in these areas. However, the possible presence of potentially significant archaeological finds, prehistoric or historic, cannot be precluded.

The development of a Major New Site would have different effects on the cultural resources of the three potential sites. The Brisbane Baylands portion of the Major New Site at Brisbane Baylands/Executive Park site and the Major New Site at Harbor Bay were formerly part of San Francisco Bay and were filled in the 20th century. Neither site is expected to contain archaeological resources. The Executive Park portion of the Major New Site contains prehistoric archaeological resources, but they are known to have been heavily disturbed and are not intact. The Major New Site at Mission Bay contains areas of potential historical archaeological resources from the 19th century. Because none of the potential Major New Sites share a common impact, each archaeological resource impact is addressed as a site-specific impact. Similarly, the historical and architectural resources differ by Major New Site and are, therefore, described on a site-specific basis below.

Mitigation Measure 12M1-1. See site-specific Mitigation Measures 12M2-1 and 12M4-2 later in this section.

2. BRISBANE BAYLANDS/EXECUTIVE PARK

a. Site-Specific Setting

Prehistoric Resources

Brisbane Baylands

Most of the Brisbane Baylands parcel is on fill. The portion of the Brisbane Baylands area east of the Southern Pacific railroad tracks was part of San Francisco Bay until 1854. Other portions of the Brisbane Baylands parcel were once terraces adjacent to San Francisco Bay. The only portions of the Brisbane Baylands parcel that were not inundated by the bay are Visitation Point on which the oil tank farm is located and other smaller areas on the peripheries of the Brisbane Baylands. It is possible that Native Americans occupied areas of Brisbane Baylands near the former margin of the bay. Therefore, it is unlikely, but not impossible, that archaeological resources could exist in the vicinity of the Major New Site at Brisbane Baylands.¹

Executive Park

It is likely that Native Americans occupied the Executive Park area because of its location on an alluvial fan at the edge of San Francisco Bay, at the base of a hill. Although no archaeological studies are on file with the Historical Resources Information System, previous investigations conducted within Executive Park indicate that there is a high potential for encountering Native American remains due to the presence of two shell mounds that were recorded near the turn of the century.²

During the first decade of the 20th century, University of California archaeologist Nels C. Nelson recorded a substantial number of prehistoric/protohistoric shellmounds near the shoreline of San Francisco Bay, including two deposits in the Candlestick Point area that are now known as CA-SFr-7 and CA-SFr-8. CA-SFr-7 (originally known as Nelson's Shellmound No. 387) was the larger of the two and is considered to be the most important of these two sites. Site CA-SFr-8 was recorded in close proximity to CA-SFr-7. Unfortunately, Nelson's original notes and any specific cartographic information that may have existed regarding CA-SFr-8 have been lost, so little specific information about this prehistoric deposit is available. However, archaeology authorities generally agree that subsurface remnants of CA-SFr-8 still exist in the Candlestick Point area.³

The prior recovery of artifacts from this area, extensive grading for construction of US 101 and incomplete records of Nelson's work, make it less likely that subsurface artifacts would be discovered at Executive Park during Major New Site construction activities. However, it is possible that intact subsurface cultural resources may still exist in the Candlestick Point area near Executive Park.^{4,5}

Historic Resources

Brisbane Baylands

No state or federal inventories list historic properties or other historic resources within the Brisbane Baylands parcel. However, the City of Brisbane has identified several structures within the Brisbane Baylands parcel as historic resources.⁶ The two structures are the former Southern Pacific Railroad Roundhouse, located at the intersection of Bayshore Boulevard and Industrial Way, and the Moore Building, located at 55 Industrial Way. These buildings are over 50 years old and may be evaluated for National Register eligibility.⁷ These buildings are located at the western boundary of the Brisbane Baylands area. The potential for finding subsurface historic resources within Brisbane Bayland parcel is low because the area was used as a landfill and contains subsurface artificial fill material.

Executive Park

The only existing structures at Executive Park are three office buildings that were constructed between 1981 and 1986 and do not meet the criteria for historical significance. State and federal inventories list no historic properties within Executive Park and no historic cultural resources are listed within the Historical Resources Information System. However, the remains of two iron-hulled ships are present in an area adjacent to Executive Park, and this suggests some possibility that subsurface historic cultural resources could exist within Executive Park.⁸

City of Brisbane Cultural Resource Policies

The City of Brisbane does not presently have any local preservation legislation.⁹ However, the *Brisbane General Plan* does have policies that encourage maintaining and rehabilitating of structures important to the history of the City of Brisbane. The city policies also promote consideration of amendments to the local Zoning Ordinance to require resource surveys in conjunction with land use development applications and the establishment of procedures to address such resources in the event of discovery.¹⁰

b. Impacts and Mitigation Measures

Impact 12M2-1. Disturbance of Prehistoric and Historic Archaeological Resources (Construction/Significant). Construction activities at the Executive Park portion of the Major New Site at Brisbane Baylands/Executive Park could disturb remnants of a significant archaeological resource or could disturb potential historic archaeological resources.

As described in the Setting section above, the Brisbane Baylands portion of the Major New Site at Brisbane Baylands/Executive Park is mostly located on fill, and it is unlikely that

subsurface archaeological resources are present. Therefore, no further discussion of archaeological resources at Brisbane Baylands is provided.

The Executive Park portion of the Major New Site at Brisbane Bayland/Executive Park is at least partially underlain by two recorded archaeological sites, CA-SFr-7 and CA-SFr-8, which were Native American shellmounds. Because shellmounds are essentially refuse heaps, contents could reveal valuable information about the lifeways of prehistoric Native Americans. If remains of the CA-SFr-7 site were still intact, subsurface construction activities such as excavation, trenching or pile driving occurring anywhere from 14 to 25 feet below the surface could potentially disturb subsurface cultural resources. In addition, because the remains of two iron-hulled ships are located in the vicinity, it is possible that buried historic archaeological resources occur at Executive Park. Disturbance of these cultural resources would be considered a significant impact.

Mitigation Measure 12M2-1. (Less Than Significant). If the Major New Site were developed at Brisbane Baylands/Executive Park, UCSF would perform measures at the Executive Park portion of the Brisbane Baylands/Executive Park site to preserve the remaining archaeological integrity of the CA-SFr-7 and CA-SFr-8 sites and other possible unknown historic archaeological resources. These mitigation measures are adapted for the Executive Park portion of the Major New Site from those previously required by the 1985 *Executive Park Development Plan Amendment Subsequent FEIR*.

- UCSF would retain an historical archaeologist (or other qualified expert) to perform a site inspection to determine the potential for discovery of cultural or historic artifacts at the Executive Park portion of the Major New Site. This investigation would include the known shellmound sites.
- In the event that the consulting archaeologist determines that there is a high probability of discovery of cultural or historical artifacts at the site, UCSF would have an archaeologist present during site excavation to record a daily log of observations. Further investigations on site would be conducted if deemed appropriate prior to or during excavation activities even if this would result in a delay in excavation activities.
- Should cultural or historic artifacts be found during excavation activities, the archaeologist would stop excavation and would assess the significance of the find, and immediately consult with the state Office of Historic Preservation. Excavation or construction activities which might damage the discovered cultural resources would be suspended for a maximum of four weeks to permit inspection, recommendation and retrieval, if appropriate.

3. HARBOR BAY

The Major New Site at Harbor Bay would be located on land that was created between 1965 and 1968 by the placement of dredged fill in bay marshland.¹¹ As a result, the potential for cultural resources to exist at Harbor Bay is very low. About 220 acres of the 320-acre site

are currently undeveloped. The following information regarding cultural resources is summarized from the 1974 *Harbor Bay Isle FEIR* and the 1990 *Alameda General Plan FEIR*. These two environmental review documents are hereby incorporated by reference in this EIR.¹²

a. Site-Specific Setting

Archaeological Resources

The *Alameda General Plan FEIR* notes that a California Archaeological Inventory records search found that with only five percent of the City of Alameda surveyed, seven prehistoric archaeological sites had been identified. The *General Plan FEIR* concluded that there is a high probability of additional resources in unsurveyed areas. None of the identified archaeological resources are at or near the Major New Site at Harbor Bay.

The Coastal Miwoks originally inhabited the Encinal peninsula, which later became the Island of Alameda. Until the early 1900s, at least a half-dozen huge shellfish mounds were present within the Island of Alameda. Shellfish mounds contain refuse which reflects the hunting, fishing and gathering lifestyles of the inhabitants of the area. The largest mound that was found covered burial grounds and measured 400 feet long by 150 feet wide by 14 feet high, encompassing an area bound by present-day Central Avenue, Court Street, Johnson Avenue and Gibbons Drive. In 1908 the contents of this mound were hauled to Bay Farm Island and used for paving and filling material.¹³

The types of artifacts that might be expected to be found in unsurveyed areas include mortars and pestles, obsidian knives, weapons, or projectile points, bone needles and other small tools. However, because of the recent fill history at Harbor Bay Business Park, it is highly unlikely that such artifact materials are present at the Major New Site at Harbor Bay.

Historic Resources

The National Register of Historic Places lists ten properties, the California Inventory of Historic Places lists five properties, and California Historical Landmarks lists one property with recognized historic value in the City of Alameda. None are at or near Harbor Bay.

The main island of the City of Alameda possesses a rich history. Alameda was originally part of a Spanish land grant which extended throughout much of what is today the East Bay. At one time, Alameda was the central East Bay city, characterized by prestigious Victorian homes, the popular resort area of Neptune Beach, and later, industrial shipyard activity.

City of Alameda Cultural Resource Policies

The *City of Alameda General Plan* contains several policies intended to guide and implement the preservation of archaeological resources in the City of Alameda.¹⁴ These policies include the following:

- 5.6.a – Protect historic sites and archaeological resources for their aesthetic, scientific, educational and cultural values.
- 5.6.b – Working in conjunction with the California Archaeological Inventory, review proposed development projects to determine whether the site contains known prehistoric or historic cultural resources and/or to determine the potential for discovery of additional cultural resources.
- 5.6.c – Require that areas found to contain significant historic or prehistoric archaeological artifacts be examined by a qualified consulting archaeologist or historian for appropriate protection and preservation.

b. Impacts and Mitigation Measures

Impact 12M3-1. Disturbance of Prehistoric and Historic Archaeological Resources (Construction/Less Than Significant). The construction of the Major New Site at Harbor Bay would not affect historical resources in the City of Alameda because the likelihood of encountering significant cultural resources during construction activities at this site is low.

The Harbor Bay site is on land created between 1965 and 1968 by the fill of bay marshland using dredged material from the bay bottom. Therefore, it is highly unlikely that construction activities such as grading and excavation would unearth significant cultural resources, even though several significant archaeological sites exist nearby. Because the potential for encountering buried resources is very low, this impact is considered to be less than significant.

No significant historical resources are known to exist on Bay Farm Island, or on the Major New Site itself. Thus, development of the Major New Site at Harbor Bay would not adversely affect historical resources.

Mitigation Measure 12M3-1. (Less Than Significant). None required.

4. MISSION BAY

a. Site-Specific Setting

Mission Bay was once an extensive shallow bay that was gradually filled in between 1865 and 1913. Most of the fill consisted of the city's trash, as well as rubble and debris from the 1906 earthquake and fire. Numerous archival archaeological investigations have been performed

for the Mission Bay site. This section of the EIR summarizes the cultural resources findings of the 1990 *Mission Bay FEIR* which is hereby incorporated by reference.¹⁵

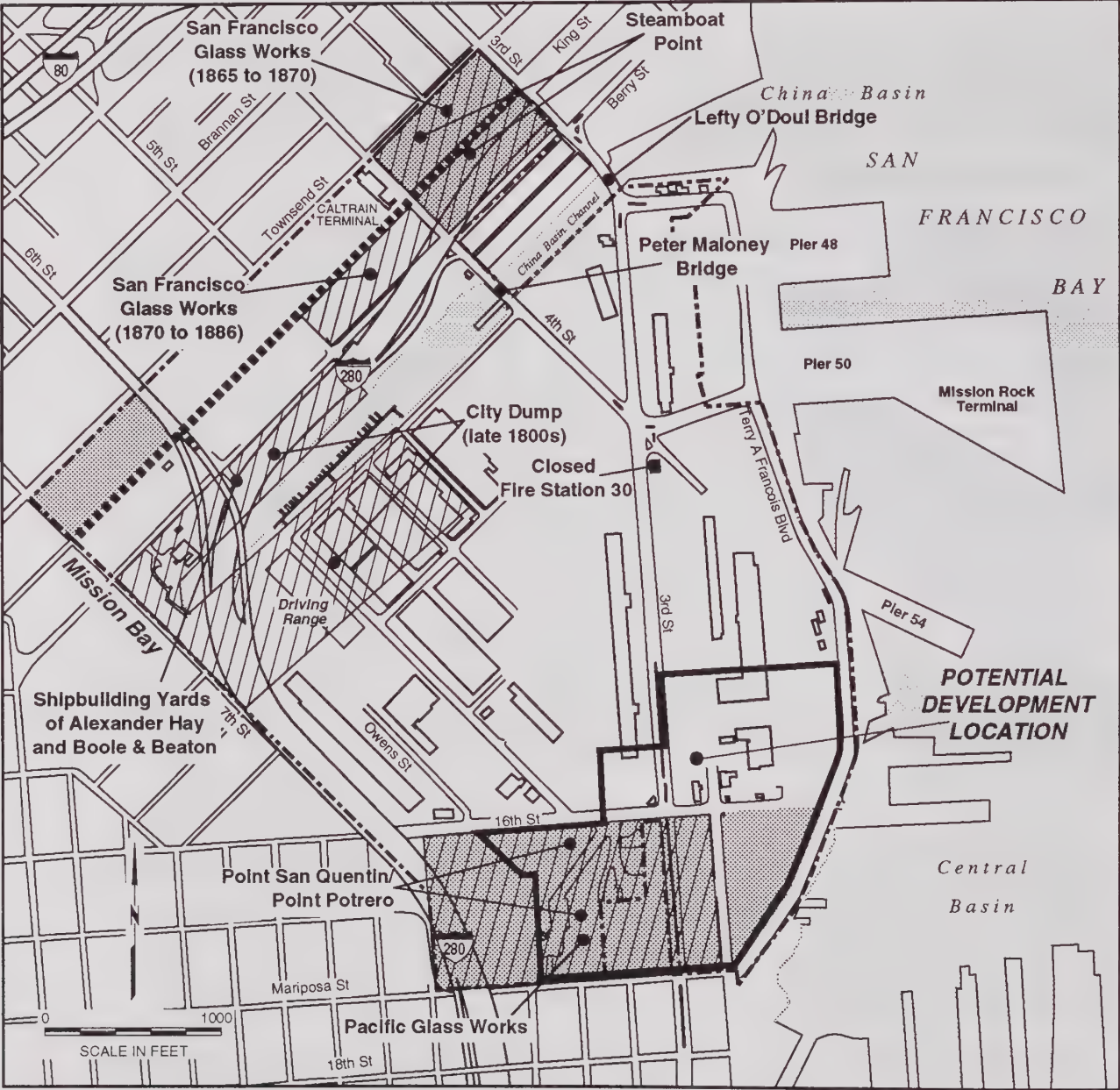
Archaeological Resources

The *Mission Bay FEIR* found that there are no recorded archaeological sites dating from the Prehistoric (2500 BC to AD 1500) or Protohistoric (1500s to 1700s) periods located within Mission Bay.¹⁶ The closest recorded resource is about 1,500 feet from the Mission Bay boundaries. Because most of the Mission Bay site lay beneath the waters of the bay during Prehistoric and Protohistoric times, the potential for encountering prehistoric or historic cultural resources is low. However, the *Mission Bay FEIR* determined that the possibility of encountering archaeological sites in the area was low but could not be dismissed. As shown on Figure 12-28, there are three pre-fill land areas in the Mission Bay area regarded as potential locations for prehistoric archaeological sites. Those areas are at the southern tip of Steamboat Point, south of the present intersection of Townsend and Third streets; southeast of the intersection of Townsend and Seventh streets; and at the northern end of Point San Quentin, north of the present Mariposa Street, between Pennsylvania Avenue and Terry A. Francois Boulevard. The *Mission Bay FEIR* found that the Steamboat Point and Point San Quentin areas would be more likely locations for prehistoric habitation and resource-gathering encampments. No archival evidence exists to suggest that prehistoric cultural deposits are actually present at these locations, and the *Mission Bay FEIR* concluded that the potential for impacts on significant prehistoric resources is low.¹⁷

The *Mission Bay FEIR* also identifies seven locations within the Mission Bay area where potentially significant historical archaeological deposits could be found, as shown on Figure 12-28.¹⁸ These areas were historic shipbuilding and other early industrial uses which might contribute significant artifacts related to San Francisco history.

Historic Resources

The *Mission Bay FEIR* identified two structures within the Mission Bay area that are considered eligible for listing on the National Register: the Lefty O'Doul Bridge at Third Street and the Peter J. Maloney Bridge at Fourth Street. Both cross China Basin Channel. In addition, the cut-basalt block pavement dating from the 1890s on King Street between Third Street and Seventh Street, and on Sixth Street south of King Street is identified in the EIR as having been previously surveyed and designated to be of local historical importance, but not eligible for the National Register. These three resources are shown on Figure 12-28.



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA and Mission Bay Plan.

LEGEND

-  Potential for Historic Cultural Resources
-  Potential for Prehistoric Cultural Resources
-  Basalt Pavement Blocks

Architectural Resources

From 1974 to 1976, the San Francisco Department of City Planning (DCP) conducted a citywide inventory of architecturally significant buildings, establishing numerical ratings from a low of "0" to a high of "5". The DCP survey listed no buildings within the Mission Bay area. In addition, the Foundation for San Francisco's Architectural Heritage (Heritage) has undertaken architectural surveys of South of Market areas, including Rincon Hill, Rincon Point, South Beach, Showplace Square, Mission Bay and the piers north of China Basin Channel. None of the structures within the Mission Bay area are considered to be significant by DCP or Heritage.¹⁹ However, the *Mission Bay FEIR* notes that the closed Fire Station 30, at Third, Fourth and Mission Rock Streets in Mission Bay may potentially be recognized as having historical merit and may meet the eligibility criteria for the National Register.²⁰ Fire Station 30 is constructed of red brick masonry in the Mission style. The two-story building has a Spanish tile roof surmounted by a low tower. The brick and masonry materials are sensitively designed and detailed. The building has a rear yard with an intricately detailed metal entrance gate flanked by two brick piers.²¹ The *Mission Bay Plan* calls for preservation of Fire Station 30.²²

b. Impacts and Mitigation Measures

Development of a Major New Site at Mission Bay could affect cultural resources in a number of ways. For subsurface archaeological resources, the potential for disturbance would be highest during construction activities, such as grading, excavation or other soil uncovering. Demolition activities could affect historical or architectural resources. The potential for disturbance to subsurface resources would be low during operation of facilities because no subsurface disturbance would take place. The *Mission Bay FEIR* included a cultural resources analysis that examined the effects of full build-out under the *Mission Bay Plan*. This EIR analysis assumes that Major New Site development could potentially occur anywhere within the Mission Bay area.

Impact 12M4-1. Disturbance of Prehistoric Archaeological Resources (Construction/Less Than Significant). Construction activities associated with the Major New Site at Mission Bay could disturb prehistoric archaeological resources. Implementation of measures in the *Mission Bay Plan* would avoid significant effects on such resources.

No prehistoric archaeological remains have previously been identified within the Mission Bay area, and the potential for uncovering unknown remains is low. Therefore, this impact would be less than significant. However, if any prehistoric archaeological remains are uncovered during land alteration activities such as grading, trenching and excavation, they could be disturbed. If prehistoric archaeological resources were discovered, UCSF would implement Mitigation Measure J.7 found in the Mission Bay Mitigation Monitoring Program to protect prehistoric archaeological resources. That measure requires consultation with local Native American organizations regarding acceptable testing and excavation procedures.

Mitigation Measure 12M4-1. (Less than Significant). None required.

Impact 12M4-2. Disturbance of Historic Archaeological Resources (Construction/Significant). Construction activities associated with the Major New Site at Mission Bay could disturb historic archaeological resources.

Historical archaeological resources could be encountered during construction activities for the Major New Site at Mission Bay. As was concluded in the *Mission Bay FEIR*, disturbance or removal of soils containing archaeological features and artifacts would destroy the archaeological integrity of the deposits, thus diminishing research potential and the ability of those deposits to yield information important in history.²³ Therefore, this impact would be significant.

Mitigation Measure 12M4-2. (Construction/Less Than Significant). If construction activities associated with the Major New Site at Mission Bay occurred within areas shown on Figure 12-28, UCSF would implement mitigation measures, as adapted from Mitigation Measures J.1, J.2, J.3 and J.6 of the *Mission Bay Mitigation Monitoring Program* to protect historic archaeological resources:

- UCSF would retain the services of an archaeologist to instruct construction crews regarding potential historic archaeological resources and appropriate procedures to follow if such resources are uncovered.
- As required, the consulting archaeologist would develop archaeological exploration programs for the areas shown on Figure 12-28 having potential historic cultural resources.
- As required, the archaeologist would provide archaeological monitoring during construction in these areas. Particular attention would be given if development were proposed in the area occupied by the late 19th-century city dump.

Impact 12M4-3. Disturbance of Historic and Architectural Resources (Construction/Less Than Significant). Development of a Major New Site at Mission Bay could contribute to loss of integrity of existing and potential National Register resources. Because Major New Site plans would respond to local design conditions, this would not be a significant effect.

As described in the *Mission Bay FEIR*, Fire Station 30, the Lefty O'Doul Bridge and the Peter Maloney Bridge have unique architectural features and could be eligible for listing on the National Register. UCSF does not propose to use Fire Station 30 and would not demolish any of the three structures; therefore, development of a Major New Site at Mission Bay would not adversely affect these historical resources. However, a Major New Site at Mission Bay would involve construction of modern buildings. If the design of these buildings were to be incompatible with the architecture of Fire Station 30 or the bridges then the integrity of these

historic resources could be adversely affected. As discussed in Section L, Visual Quality conservation policies in the *San Francisco Master Plan* set forth several policies that ensure the preservation of the character and scale of historical resources and unique areas. These policies address design issues such as visual harmony, size, bulk and scale. Because the LRDP Goals and Objectives call for LRDP building design to be responsive to building scale and character in surrounding areas, it is not expected that the LRDP would cause the loss of integrity of these historic or architectural resources.

Mitigation Measure 12M4-3. (Less Than Significant). None required.

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1. The Historical Resources Information System, formerly the California Archaeological Inventory, conducted a review of records for a wetlands delineation project not related to this EIR. The review found no recorded archeological sites at Brisbane Baylands but noted one archaeological reconnaissance that was completed for a City of Brisbane wastewater infrastructure improvement project. That study evaluated less than one percent of Brisbane Baylands. Sources: California Archaeology Inventory, Northwest Information Center, letter to John Lowenthal, Wetlands Research Associates, Inc., re: Tuntex Properties Inc. in Brisbane (COE Permit # 20018S91), San Mateo County, File No. 93-452, November 22, 1993; California Archaeology Inventory, Northwest Information Center, letter to John Lowenthal, Wetlands Research Associates, Inc. re: Tuntex Properties Inc. in Brisbane, San Mateo County (COE Nationwide Permit #20018S91), File No. 93-392, October 6, 1993.
 2. Lynn Compas, Researcher II, Historical Resources File System, Northwest Information Center, letter to Rita Cheng, EIP Associates, October 10, 1994.
 3. Allen G. Pastron, Ph.D., President, Archeo-Tec, letter to Rita Cheng, EIP Associates, October 24, 1994.
 4. City and County of San Francisco, Department of City Planning, *Executive Park Development Plan Amendment Subsequent Final Environmental Impact Report*, SCH No. 7607071, October 17, 1985.
 5. Allen G. Pastron, Ph.D., President, Archeo-Tec, letter to Rita Cheng, EIP Associates, October 24, 1994.
 6. City of Brisbane, Parks, Beaches, and Recreation Commission and City of Brisbane Planning Commission, *City of Brisbane General Plan Background Report, Existing and Potential Parks, Recreation, Historic, and Cultural Resources*, April 1992.
 7. Shirley Brignoli, Administrative Assistant, City of Brisbane Planning Department, telephone conversation with EIP Associates, December 22, 1995.
 8. Archeo-Tec, Inc., *Archaeological Investigations Within the San Francisco Clean Water Programs Sunnydale Facilities Project, San Francisco County, California*, 1991, as cited in Lynn Compas, Researcher II, Historical Resources File System, Northwest Information Center, letter to Rita Cheng, EIP Associates, October 10, 1994.

9. Carole Nelson, Planning Director, City of Brisbane, telephone conversation with EIP Associates, August 25, 1994.
10. City of Brisbane, *1994 General Plan*, June 21, 1994, p. 139.
11. City of Alameda, *Harbor Bay Isle: A Residential/Industrial Development on Bay Farm Island, City of Alameda, Final Environmental Impact Report*, January 1974, p. II-4.
12. a. City of Alameda, *Harbor Bay Isle: A Residential/Industrial Development on Bay Farm Island, City of Alameda, Final Environmental Impact Report*, January 1974, p. II-4.
b. City of Alameda, *Alameda General Plan Final Environmental Impact Report*, SCH No. 90030463, December 1990, pp. 79-81.
13. City of Alameda, *Alameda General Plan Final Environmental Impact Report*, SCH No. 90030463, December 1990, p. 79.
14. City of Alameda, *City of Alameda General Plan*, February 1991, p. 91.
15. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, Section I and Section J.
16. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.J.4.
17. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.J.14.
18. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.J.18.
19. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.I.1.
20. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, pp. VI.I.4., VI.J.16.
21. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, p. VI.I.4.
22. City and County of San Francisco, Department of City Planning, *Mission Bay Plan, Proposal for Adoption*, Objective 5, Policy 3, as amended September 1990.
23. City and County of San Francisco, Department of City Planning, *Mission Bay Final Environmental Impact Report*, SCH No. 86070113, August 23, 1990, V.II, VI.J.18.

N. POPULATION, EMPLOYMENT, AND HOUSING

This section examines the population, employment and housing effects of the Major New Site. Due to the regional nature of housing supply and demand, the population, employment and housing changes of the Major New Site are discussed in the Development Scenario section. To the degree that some site- or jurisdiction-specific information is pertinent, it is also discussed under the Development Scenario subsection. This EIR identifies the Development Scenario or Site-Specific effects of the Major New Site on population, employment and housing at Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay as project impacts. However, those impacts would be similar to effects of buildout of business park or research and development uses designated in approved plans for those sites, regardless of project sponsor.

1. DEVELOPMENT SCENARIO

Impacts and Mitigation Measures

Impact 12N-1. Campus Population and Housing (Project/Less Than Significant). The Major New Site could add approximately 8,250 persons to the weekday average population at UCSF and up to 96 family student spaces and 248 single student spaces.

The Major New Site would have an average weekday population of 8,250, including employees and visitors. Approximately 1,000 of these employees would not be new UCSF population, but rather existing employees transferred to the Major New Site from other UCSF sites such as Oyster Point site or Parnassus Heights.

The LRDP provides for adequate space to be developed at the Major New Site to accommodate this projected population. Therefore, no adverse impacts on population and employment would be anticipated to result from such increases.

Although not required under CEQA to mitigate either a significant or non-significant impact of the LRDP, the LRDP nonetheless proposes to develop new housing for students: 96 family student spaces and 248 single student spaces. UCSF would seek to locate the majority of this housing at or near the selected Major New Site. With the LRDP housing proposals at Parnassus Heights, including reducing the total housing at Aldea San Miguel by 40 units to 125 units, the LRDP proposal would satisfy the LRDP goal of providing 25 percent of UCSF enrolled students with housing. Housing “spaces” would vary depending upon the type of unit. For example, one student apartment unit could provide four student spaces.

The LRDP also includes policies to pursue opportunities for development of junior faculty housing, although the LRDP does not propose specific projects for such housing. Sites near the Major New Sites would be considered for development of this housing. The LRDP further calls for UCSF to explore ways to develop a housing program aimed at the housing demand and preferences of staff to ensure no adverse effects result from staff growth at the Major New Site.

UCSF has no available land at any of its existing sites on which to build more housing. As a result, when implementing the LRDP, UCSF would be likely to pursue a range of alternatives for development of housing, from working with non-profit housing developers to using various financing mechanisms such as University of California Housing System Revenue Bonds, pooled bonding and long-term ground leases.

The Major New Site locations in Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay each have different implications for developing housing either on-site or in the vicinity as discussed below:

- The *Brisbane General Plan* specifically excludes residential development from the Baylands. Brisbane does have a planned future supply of residentially-zoned land in the vicinity of the Baylands site.
- At Executive Park, a 600-unit residential development called St. Francis Bay has been approved and is planned for completion by the end of 1997.
- No residential uses are planned as part of the Harbor Bay Business Park. Residential land in the City of Alameda is essentially built out and no suitable sites for a UCSF housing project are available on Bay Farm Island or in Alameda. Some opportunities may arise in the future for housing as the city prepares plans for the closure of the Alameda Naval Air Station.
- The *Mission Bay Plan* includes development of up to 8,500 residential units.

Development of UCSF-related housing on sites now designated for residential uses would not affect potential housing supply on a regional basis, as Association of Bay Area Government's (ABAG) regional housing supply estimates are based on development of land designated for residential use. If UCSF were to develop housing on sites not currently zoned for residential uses, the LRDP could increase overall regional housing supply.

Mitigation Measure 12N-1. (Less Than Significant). None required.

Impact 12N-2. Increase In Housing Demand from Employment (Project/Less Than Significant). The Major New Site would add about 8,100 net new jobs and would increase demand for housing. The increase in demand for housing could be met in the regional housing markets for jobs located in San Francisco, Alameda or Brisbane, and therefore would not be a significant impact.

There would be approximately 9,100 UCSF employees at the Major New Site of which approximately 1,000 employees would be transferred from existing UCSF facilities such as Parnassus Heights, Hunters Point or Oyster Point and therefore would not be new UCSF employees. Thus, the Major New Site would create 8,100 net new jobs.

In 1995, total UCSF faculty and staff numbered about 14,000. The Major New Site's 8,100 net new employees would increase UCSF employment by about 58 percent.

The new UCSF employment associated with the Major New Site would have a secondary effect related to household formation. The most conservative assumption for estimating household formation for employees is a one-to-one relationship between employees and households. With this assumption, the 8,100 new employees associated with the Major New Site could form 8,100 new households. Because these employees would likely be dispersed throughout the regional housing market, an appropriate estimate for future persons per households would be the ABAG's projected region-wide average in 2010 of 2.71 persons per household.¹ Using this factor yields a population estimate of 21,900 persons associated with development of the Major New Site. The 8,100 new households would be a 0.4 percent increase over 1995 regional households (2.34 million) and population (6.5 million) in the region. It would be about 2.1 percent of the increase in regional households (387,000) and population (1 million) projected to occur between 1995 and 2010. (See Chapter 3, Section N.) In reality, new UCSF employment at the Major New Site would be expected to create fewer than 8,100 new regional households because many of the new UCSF employees would be existing Bay Area residents.

The household estimate is also a measure of demand for housing. ABAG concluded that the estimated regional demand for 387,000 new housing units from 1995 to 2010 could be satisfied by the region's future supply of 503,000 units. ABAG projects a future surplus of 14,900 units in San Francisco during this period, based on a projected household growth of 21,800. However, ABAG projects a future total deficit of 29,200 units among Alameda (7,300), Santa Clara (3,300), Solano (7,600) and Sonoma (10,900) counties between 1995 and 2015 after accounting for projected household growth in those counties. Under the most conservative assumption that all new UCSF employees would be new employees to the region and thus require housing on a one-to-one basis, the Major New Site would increase regional demand for housing 0.4 percent over demand in 1995 and would be 2.4 percent of the projected increase in regional demand between 1995 and 2010. This projected demand could be accommodated by the projected housing supply in the region within which the Major New Site would be located. See also Chapter 14, Section A, Growth Inducement, for additional discussion of regional employment and housing effects of the LRDP.

Mitigation Measure 12N-2. (Less Than Significant). None required.

1. Association of Bay Area Governments, *Projections '96*, December 1995, p. 85.

O. COMPARISON OF IMPACTS AT MAJOR NEW SITE LOCATIONS

This section summarizes the main differences in significant environmental impacts among the three Major New Sites considered in the 1996 LRDP: Brisbane Baylands/Executive Park; Harbor Bay; and Mission Bay. The comparison reflects the findings of the analysis presented in the preceding sections of Chapter 12.

All Major New Sites generally would fulfill the Goals and Objectives for a new site, as listed in Chapter 2, Project Description. The Goals include:

Goal 1 Establish a major new campus site to provide space for decompression, expansion and consolidation of UCSF's activities which can accommodate existing programs, new programs and as yet unprogrammed growth, and which is suitable, flexible, safe and attractive for its occupants.

Goal 2 Arrange campus land uses at the major new campus site to reinforce academic and operational relationships.

Goal 3 Optimize the design, placement and relationship of buildings on the major new campus site to meet UCSF's program needs in the best way possible.

Goal 4 Ensure that UCSF development is compatible with its physical surroundings in use, scale and density.

The environmental characteristics and significant effects would vary among the three sites; for example, there are different traffic corridor constraints, noise effects, or sensitive wildlife conditions. This EIR does not rank those effects at any of the sites.

UCSF and The Regents, in reaching a decision to select a preferred Major New Site location, must consider the environmental information in this document, as well as other policy, operational and economic factors.

1. LAND USE

Development of a Major New Site at any of the three locations would be generally consistent with local land use regulations and would not have significant land use impacts. All three locations are lands in existing urbanized areas and designated in local plans for a range of uses reflective of UCSF uses at the Major New Site. The Executive Park portion of the Brisbane Baylands/Executive Park site would have office-tenant relocation impacts that would be mitigated to a less-than-significant level, by providing relocation assistance. A Major New Site at Mission Bay could require an amendment to the *Mission Bay Plan* to address a change in the mix of land uses in that plan to accommodate the Major New Site. That effect

would not be expected to change the overall housing and employment uses envisioned in the *Mission Bay Plan*. There would be no significant, unmitigated adverse land use or planning effects at any locations.

The LRDP proposes to provide 96 family student spaces and 248 single student spaces, to replace 40 family student spaces lost at Aldea San Miguel, and to meet a goal of providing 25 percent of UCSF students with housing, to locate most of their housing at or near the Major New Site. Because of varying local land use designations in Brisbane, Alameda or San Francisco development of housing might conflict with those designations.

2. TRAFFIC/CIRCULATION/PARKING

Development of a Major New Site would generate transportation effects at all three sites. Those effects would vary among the sites for two major reasons: each site is served by a different local road network and by different portions of the regional freeway network; and the split among vehicle and transit modes at a Major New Site would differ because of differing availability of public transit services at each location.

At the Brisbane Baylands/Executive Park site, vehicle trips would cause a volume/capacity (v/c) ratio deterioration on US 101 freeway conditions near the site. The freeway would be at Level of Service (LOS) F in the year 2010 without the Major New Site, and the Major New Site effects would be unavoidable significant effects. Development of a Major New Site at the Brisbane Baylands/Executive Park site would cause significant v/c deterioration on Bayshore Boulevard north of Guadalupe Canyon Parkway, and on Alana Way near the Executive Park site. Those significant effects could be avoided with identified lane improvements or mitigation measures.

At the Harbor Bay site, vehicle trips would cause a v/c ratio deterioration on I-880 freeway conditions near the site. The freeway would be at LOS F in the year 2010 without the Major New Site. Major New Site effects would be unavoidable significant effects. Development of a Major New Site at Harbor Bay would cause LOS or v/c deterioration on the Miller-Sweeney Bridge, High Street Bridge, Fernside Boulevard and Bay Farm Island Bridge. Those effects would be significant. A new San Leandro Bay crossing would avoid the traffic effects, but the bridge project is considered speculative. Therefore, these would be unavoidable significant effects. Harbor Bay site traffic would also cause significant LOS or v/c deterioration on Davis Street, Doolittle Drive, Hegenberger Road, Airport Drive and 98th Avenue (all in the City of Oakland). With the exception of Davis Street, those effects would be avoided through identified lane expansions or mitigation. Davis Street capacity is constricted by a freeway overpass. Widening this overpass is considered speculative, so the v/c deterioration on Davis Street would be an unavoidable significant effect.

At the Mission Bay site, vehicle trips would cause a v/c ratio deterioration on US 101 and I-280 freeway conditions near the site. The freeway segments would be at LOS F in the year 2010 (without the Major New Site). Major New Site effects would be significant unavoidable impacts.

The Major New Site at Mission Bay would also add traffic to the Bay Bridge. The Major New Site-related trips would not cause a v/c deterioration on the Bay Bridge, and this would not be a significant project effect. Major New Site-related traffic would cause a v/c deterioration on Cesar Chavez Street; those effects could not be avoided with available right-of-way on that segment, and this would be an unavoidable significant effect.

Transit ridership effects at the Harbor Bay site would cause significant impacts on existing bus route capacity. The effects would be avoidable through mitigation identified to increase service. Transit ridership effects at Brisbane Baylands/Executive Park and at Mission Bay would not be significant.

The 1996 LRDP proposes to develop a Major New Site with sufficient parking to meet demand. Because of the range of availability of transit and projected number of vehicle trips among the three locations, the Brisbane Baylands/Executive Park site would require about 5,520 parking spaces; the Harbor Bay site, about 5,750 spaces; and the Mission Bay site, about 4,180 spaces.

3. AIR QUALITY

Development of the Major New Site at any of the three locations would have significant air quality impacts due to construction and stationary source emissions. These effects could be reduced to less-than-significant levels through mitigation measures.

Traffic associated with development at all three sites would generate air pollutant emissions at levels that would exceed Bay Area Air Quality Management District (BAAQMD) thresholds of significance. While those emissions would be in the context of expected reductions in overall air basin emissions in 2010, development at any of these locations would contribute to cumulative emissions in the air basin, an unavoidable significant effect. Because of differences in traffic characteristics among the three sites, total vehicle-related emissions contributing to this effect would be least for the Mission Bay site, with 69 percent drive-alone trips; 84 percent at Brisbane Baylands/Executive Park; and highest for the Harbor Bay site, with 87 percent drive-alone rates.

Carbon monoxide (CO) effects related to Major New Site vehicle trips would not exceed roadside CO standards at any Major New Site location.

Toxic air contaminants emissions associated with Major New Site uses, at any location, would be below the threshold of significant health effects.

4. NOISE

A Major New Site would generate noise effects from construction activities, stationary equipment operation and vehicle traffic noise. Construction and stationary equipment noise effects at any location could exceed local noise regulations or noise standards. Those effects could be mitigated below a level of significance.

Vehicle traffic related to Major New Site activities would increase noise levels on corridors serving the sites. Modeled traffic noise levels for existing conditions and year 2010 traffic conditions, without a Major New Site, would exceed noise/land use compatibility criteria on corridors near the sites. Additional traffic with the Major New Site would not increase noise by 3 dBA or more on any corridor, and therefore would not have a significant project effect.

Brisbane Baylands/Executive Park would have four corridors where the year 2010 traffic without the Major New Site would increase 1995 noise levels beyond local land use compatibility criteria. On Jamestown Avenue, Major New Site traffic would contribute to a substantial cumulative increase in noise that would exceed compatibility criteria for residential uses. At Harbor Bay or Mission Bay, existing traffic noise levels already exceed compatibility criteria, as is often the case in a developed urban setting.

5. HAZARDOUS MATERIALS

Use of hazardous materials at a Major New Site at any location would not, in general, cause significant adverse effects. Disposal of low-level radioactive waste, because of the uncertainty of availability of long-term disposal capacity, would be an unavoidable significant effect from development of a Major New Site at any location.

The Mission Bay site and the Brisbane Baylands portion of the Brisbane Baylands/Executive Park site have been characterized as contaminated with hazardous materials, resulting from past industrial or railroad uses. Those conditions would be mitigated below levels of significance, with existing remediation plans or remediation expected to be completed as part of the development process. The Executive Park and Harbor Bay sites are not known to have significant subsurface contamination.

6. GEOLOGY AND SEISMICITY

Development of a Major New Site would encounter substantially similar geo-seismic impacts at all three locations. The basic subsurface condition — fill overlying Bay Mud and other unconsolidated sediments in a seismically active area — is found at each of the locations. The Executive Park portion of Brisbane Baylands/Executive Park site contains a steep hillside, susceptible to landslides and erosion. Site-specific characteristics at any location would be addressed through foundation investigations and the inclusion of appropriate structural and seismic-resistant design. Impacts would be reduced to a less-than-significant level at all locations through implementation of the University Policy on Seismic Safety and applicable building and safety codes for project design and construction.

7. HYDROLOGY AND WATER QUALITY

Development of the Major New Site at any location could generate significant water effects during construction due to erosion and sedimentation. Identified mitigation would reduce this impact to a less-than-significant level. Other potential effects at all three Major New Site

locations would include increased flooding hazards and degradation of the water quality of stormwater runoff. All locations would have potential significant impacts associated with increased tidal flooding hazards and introduction of contaminated sediments into the sewer system. Mitigation measures identified would avoid significant hydrology and water quality effects at all locations.

8. VEGETATION AND WILDLIFE

The Major New Site would encounter different vegetation and wildlife conditions at each location. The Brisbane Baylands site includes potential wetland habitat for the San Francisco garter snake and the California red-legged frog, both listed species. Wetland habitat could also support the San Francisco forktail damselfly, a species of concern. If these three species were found to occur on the Baylands site, it is likely that development of the Major New Site could be located within the larger Baylands site to avoid disturbance of that habitat. If disturbance were unavoidable, a mitigation plan prepared in consultation with the US Fish & Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG), to relocate the population of these species to suitable habitat would avoid these significant effects. The Executive Park portion of the Brisbane Baylands/ Executive Park site does not contain sensitive species or habitat.

A Major New Site at Harbor Bay would destroy potential nesting or foraging habitat for several bird species in listed or species of concern categories. It is unlikely that development of the Major New Site could be located within the Harbor Bay site to avoid those effects. A mitigation plan, prepared in consultation with USFWS and CDFG, to move the population of the species to newly created, suitable habitat would avoid these significant effects. The Harbor Bay site also contains wetlands habitat that could support the San Francisco forktail damselfly. If the species were present, the significant effect and mitigation would be similar to that at the Brisbane Baylands site. The Harbor Bay site includes potential habitat for several bird species on federal or state endangered species lists. Displacement of those species would be a significant effect and the analysis identifies mitigation measures to avoid their impacts.

The Brisbane Baylands portion of the Brisbane Baylands/Executive Park site includes about eight acres of jurisdictional wetlands (ditches and small depressions supporting wetland vegetation), as defined by the US Army Corps of Engineers (Corps). The Harbor Bay site includes several ponds that may be subject to Corps jurisdiction. If wetlands areas could not be avoided during construction of the Major New Site, displacement of wetlands at Brisbane Baylands would require a Corps Section 404 permit, including mitigation for loss of wetlands. If the Corps took jurisdiction of wetlands at Harbor Bay, a Section 404 permit would also be required because wetlands areas at Harbor Bay could not be avoided.

Development of a Major New Site at Mission Bay would not involve any wetland issues. The Mission Bay Site does not include sensitive habitat or species that would be disturbed by development of a Major New Site.

9. PUBLIC SERVICES

Potential public service impacts associated with a Major New Site would be less-than-significant at any of the locations considered. The impacts of the proposed Major New Site would be comparable in magnitude whether developed at Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay, and would be within the expected capacities and capabilities of the service entities.

10. UTILITIES AND INFRASTRUCTURE

Potential utilities and infrastructure impacts of the Major New Site development would be generally comparable in magnitude at each of the locations. The Brisbane Baylands subarea of the Brisbane Baylands/Executive Park site would require installation of new water distribution and wastewater collection infrastructure to serve the Major New Site, as well as the rest of planned development on the Baylands subarea and vicinity.

11. VISUAL QUALITY

Development of a Major New Site at any of the three alternative locations would create effects from alteration of existing view conditions and change of appearance of the sites. Development of research campus buildings, parking structures, open space and infrastructure at those sites would replace generally undeveloped land, or former railroad/industrial sites, with three- to five-story structures. The Major New Site would alter some views towards San Francisco Bay at all three locations.

The LRDP proposals for the Major New Site include design guidelines intended to develop a new campus site at appropriate scale, design, and amenities and to be responsive to local visual conditions, local zoning and height and bulk controls. Visual effects would not be significant at any site.

12. CULTURAL RESOURCES

Development of a Major New Site at two locations would have the potential to disturb subsurface cultural resources. The Executive Park portion of the Brisbane Baylands/Executive Park site is near two recorded pre-historic archaeological sites. The Mission Bay area contains potential historic archaeological resources. In contrast, the Brisbane Baylands and Harbor Bay sites have the least potential for disturbance of cultural resources. With identified mitigation measures effects of potential disturbance of cultural resources at all locations would be less than significant.

13. POPULATION, EMPLOYMENT, AND HOUSING

The Major New Site would create 8,100 net new jobs and could increase demand for housing by 8,100 households at each of the Major New Sites. Because increased housing demand would be met within the future housing supply of the larger housing market at each site, the LRDP would not create significant housing impacts at any of the Major New Sites. At the Brisbane Baylands/Executive Park site, the employment generation would be split between the jurisdiction of two subsites with approximately 65 percent and 35 percent, respectively, within the City of Brisbane and San Francisco. The LRDP proposes to provide 96 family student spaces and 248 single student spaces, to replace 40 family student spaces lost at Aldea San Miguel, and to meet a goal of providing 25 percent of UCSF students with housing, to locate most of their housing at or near the Major New Site.

Overall LRDP Impact Summary

Chapter 13: Overall LRDP Impact Summary

A. INTRODUCTION

The 1996 LRDP analyzed in this EIR includes potential UCSF activities at existing UCSF sites, as well as proposed development of a Major New Site at one of three alternative locations. By their nature, most physical environmental effects resulting from implementation of the LRDP would occur at or near the UCSF site where that development occurs. Those effects which would not accumulate across several or all sites include: land use; noise; geology and seismicity; hydrology and water quality; vegetation and wildlife; most public services; utilities and infrastructure; visual quality; and cultural resources. Chapters 4 through 12 of this EIR present environmental effects associated with LRDP implementation at each existing and proposed LRDP site, either with analysis in this EIR, or by reference to and summations of prior environmental review for approved projects at those sites.

This Chapter 13 assesses those environmental effects of the LRDP that have the potential to accumulate across UCSF sites and create greater or different impacts than this EIR presents on a site-specific basis. The environmental effects with this potential include: transportation; air quality, including criteria air pollutants and toxic air contaminants; hazardous materials use and hazardous waste disposal; and certain water supply and wastewater treatment services effects.

These “overall LRDP” effects are different than the cumulative effects analyzed for environmental topics, as required by *CEQA Guidelines* Section 15130. This EIR uses appropriate local or regional projections or adopted land use plans as the basis for evaluating the cumulative effects of development – that is, the effects of the LRDP in combination with other reasonably foreseeable projects. Those cumulative effects include transportation, air quality and noise effects based on local or regional forecasts of traffic growth separate from the LRDP, as well as cumulative effects related to hazardous materials and utilities.

The balance of Chapter 13 focuses on the LRDP’s overall effects that could generate substantially greater impacts than those analyzed at each existing or potential UCSF site individually. As a basis for this discussion, several characteristics of the LRDP are summarized below:

The LRDP would:

- ***Increase UCSF space 65 percent from five million gsf to about 8.3 million gsf.*** The LRDP would meet UCSF’s need for renovated and new space by increasing its space by 65 percent, from a 1994 total of 5 million gsf to a year 2010 total of 8.3 million.
- ***Increase Average Daily Population (ADP) at all UCSF sites 57 percent from 23,000 to 36,000.*** The LRDP would increase total ADP, including staff, students, patients and visitors, from all sites approximately 57 percent with

an increase from 23,165 persons in 1994 to 36,000 persons at buildout (2010).

The Major New Site would account for 81 percent of the net new space that could be developed under the LRDP. Therefore, the EIR analysis of the Major New Site's impacts accounts for most of the total LRDP impacts that could result.

1. TRAFFIC/CIRCULATION/PARKING

The EIR analyzes changes in traffic generation, vehicle trips and levels of service effects on road corridors in the vicinity of the Parnassus Heights site and the three Major New Site locations. Traffic at other UCSF sites was found to have localized, non-significant effects as part of prior environmental review (e.g., Laurel Heights, UCSF/Mount Zion, Mission Center).

Overall LRDP traffic could involve effects generated by LRDP activities at Parnassus Heights and the Major New Site beyond those identified on a site-by-site basis. However, it would be expected that these would not generate significant effects other than those already discussed in this EIR for the following reasons:

- Total daily trips generated by one UCSF site as analyzed in this EIR would include trips to and from other UCSF sites. Those would include trips between existing sites and a Major New Site. Therefore overall LRDP traffic generation is accounted for in the analyses of this EIR.
- The corridor analyses in this EIR address potential am and pm peak-hour effects. Inter-campus trips would be less likely to occur during the morning and evening peak commute travel. In addition, net new trips generated by LRDP activities at Parnassus Heights would predominantly be patient and visitor trips. The Parnassus Heights transportation analysis assumes that the peak period of those patient/visitor trips would be the pm peak hour on the road network in the vicinity, a conservative assumption. That assumption would account for extra inter-site trips.
- At the Parnassus Heights site, traffic generated by LRDP activities was found to be a very small portion of future traffic on corridors in the vicinity. Parnassus Heights site traffic, as it dispersed on the street system, could, however, use routes also used by traffic from other UCSF sites, such as Laurel Heights. Those Parnassus Heights traffic effects would be even smaller at greater distance from the Parnassus Heights site. Also, traffic from more than one UCSF site would be accounted for in the background growth rate of one percent per year assumed in the Parnassus Heights analysis.
- Overall LRDP traffic would add traffic to regional routes serving the sites. That traffic would be accounted for in existing and future traffic conditions analyzed for the Major New Site locations. That is, existing peak-hour trips on, for example, US 101 or the Bay Bridge, would include trips by existing UCSF employees, and future traffic for the year 2010 (without the Major New

Site) projected in the transportation analyses would account for changes in UCSF traffic from other San Francisco sites. In addition, the conservative assumptions used in the Major New Site traffic analyses tend to overstate vehicle trip generation on regional networks, and this would further account for UCSF inter-site traffic under the LRDP.

For the above reasons, the existing EIR transportation analyses includes overall LRDP effects. Overall LRDP traffic would not generate significant impacts and would not require mitigation measures other than those already identified in the analysis for specific sites.

2. AIR QUALITY

The EIR analyzes the effects of criteria air pollutant emissions and toxic air contaminant emissions from existing and potential UCSF sites under the 1996 LRDP.

Criteria air emissions would result from vehicle emissions, construction activities and operational sources related to LRDP activities at UCSF's existing sites and the Major New Site. The overall criteria air emissions from implementation of the LRDP could involve effects beyond those identified in this EIR for individual sites. As discussed in Chapter 12, Section D, vehicular traffic generated at a Major New Site would cause significant unavoidable air quality impacts (with respect to ROG, NO_x and PM₁₀ at Brisbane Baylands/Executive Park and Harbor Bay, and with respect to NO_x and PM₁₀ at Mission Bay). Other criteria air emissions at the Major New Sites (e.g., construction, operational) were found to be mitigable to less-than-significant levels.

LRDP activities at existing UCSF sites would also cause criteria air emissions. At Parnassus Heights, no significant air quality impacts were identified in Chapter 4, Section D, for LRDP activities. The *Revised Laurel Heights Plan FEIR* identified PM₁₀ emissions as a significant and unavoidable impact. At UCSF/Mount Zion, significant unavoidable impacts were identified with respect to cumulative increases in criteria air emissions.

Although overall criteria air emissions associated with the 1996 LRDP would be greater than those identified at individual sites, no additional effects would be expected. The BAAQMD standards for evaluating the significance of criteria air emissions are designed to be applied to sources of emissions, and these standards have been applied to UCSF sites in this EIR. With the exception of PM₁₀, emissions of other criteria air pollutants are expected to decrease in the Bay Area by 2010.

Toxic air contaminant emissions would result from vehicle emissions and operational sources (including research labs, clinical uses, boilers, generators and cogeneration facilities) related to LRDP activities at UCSF's existing sites and the Major New Site. Impacts from toxic air contaminant emissions are analyzed in Chapter 4, Section D for Parnassus Heights, and in Chapter 12, Section D for the Major New Site. These emissions were found not to exceed the BAAQMD's ten in 1,000,000 new cancer cases standard of significance and were found to be less than significant.

The BAAQMD's standard of significance was developed to evaluate emissions from a single source. To provide a conservative analysis, the standard has been applied in this EIR to emissions from entire UCSF sites. No standards exist for measuring the impacts of toxic air contaminants from multiple sources.

Screening-level health risk assessments for stationary sources of toxic air contaminant emissions indicate that the location of maximum impact is very localized, i.e., close to the emission sources. UCSF sites and the Major New Site are located at distances greater than 1,000 feet from each other. This distance is sufficiently large to preclude substantial interaction of emissions at any location. Mobile source emissions of toxic air contaminants are being addressed at federal and state level by emissions controls and standards for vehicles and by control of fuel composition.

In addition, there are no accepted methodologies or standards by which to assess the cumulative toxic air emission impacts of all potential stationary and mobile sources of toxic air emissions related to the LRDP. No scientifically sanctioned protocol exists for evaluating mobile and stationary source emissions together or for judging the significance of the resultant impact. Therefore, the potential cumulative impacts of toxic air emissions are too speculative to evaluate.

When compared to the stationary source criterion, the present levels of toxic air contaminants are high enough to raise concern from the public; however, given the lack of an approved standard or evaluation methods, the mobile source emissions and stationary source emissions from the LRDP activities cannot be reconciled, much less compared meaningfully. Therefore, no reasonable determination of the significance of cumulative toxic air emissions impacts can be made with available information, standards and methods. In the event that the information, standards or methodology become available by which to evaluate the significance of cumulative toxic air emissions, then it is UCSF's policy to undertake such analysis and consider implementation of technologically feasible measures that would substantially reduce the project's contribution to significant emissions.

3. HAZARDOUS WASTE DISPOSAL

The EIR analyzes changes in hazardous material use and hazardous waste generation, principally as a result of a net increase of biomedical research activities at the Major New Site. With implementation of the LRDP, research uses would decrease at the Parnassus Heights site and would increase slightly at UCSF/Mount Zion and SFGH. Transportation, use and disposal of hazardous materials and hazardous waste would not be expected to create a significant effect on the Major New Site itself, as discussed in Chapter 12, Section F. It is not anticipated that LRDP activities would result in any significant increase in transportation of hazardous materials or hazardous waste among UCSF sites. Impact 12F1-4 does separately conclude that contributions to loads on hazardous waste management facilities would be a significant cumulative unavoidable effect of the LRDP. That conclusion, for off-site disposal site facilities, would be the same, taking into consideration hazardous waste disposal from the Major New Site and from other UCSF sites described in the LRDP.

4. PUBLIC SERVICES AND UTILITIES SERVICES

Water demand and wastewater generation are the two services with potential for overall LRDP effects. Total effects would be higher than individual site effects, in cases where the same provider served more than one site. For water supply, the San Francisco Water Department directly serves all sites within San Francisco and indirectly serves Brisbane; the San Francisco Department of Public Works provides wastewater treatment to all sites in San Francisco and to Brisbane. The maximum overall impact of the LRDP for water use and wastewater treatment would therefore occur if the Major New Site were developed at Mission Bay. In that scenario, San Francisco would provide water and wastewater services to all existing and prepared UCSF activities.

This total water use would be approximately 0.58 mgd (million gallons per day), an increase of 0.6 percent over 1995 annual use in the City and County of San Francisco (90 mgd) and 0.24 percent over 1995 annual use systemwide (240 mgd). Overall UCSF use under the LRDP would be 0.7 percent of the SFWD system's surplus capacity (85 mgd). The SFWD expects to be able to meet some additional water demand from cumulative development. As the overall UCSF demand would not be a substantial increase and could be met with existing surplus capacity of the SFWD, the overall water demand would not be significant.

If Brisbane Baylands/Executive Park or Harbor Bay were chosen as the location for the Major New Site, water demand from the SFWD would be less: approximately 0.46 mgd under the Brisbane/Executive Park scenario (assuming a 65 percent and 35 percent split in demand between Brisbane Baylands and Executive Park and use of Brisbane's current SFWD surplus contracted capacity of 0.12 mgd).

Wastewater flow would be estimated at 90 percent of water usage, and the overall increase in wastewater flow from all UCSF activities would be 0.525 mgd. Although part of the Parnassus Heights site is served by the city's Oceanside facilities and part is served by the Bayside facilities, wastewater flows from new uses developed under the LRDP would be served by the Southeast Plant. This wastewater generation would be approximately 0.525 mgd average dry weather flow, an increase of 0.9 percent over current flows of 60 mgd at the Southeast Plant. This would use about two percent of the Plant's current surplus capacity of 25 mgd. The Department of Public Works does not foresee any treatment capacity issues that would restrict cumulative development. Because the increase would not be substantial and could be served within existing surplus capacity, the impact would not be significant.

Summary of Other CEQA Effects

Chapter 14: Summary of Other CEQA Effects

A. GROWTH INDUCEMENT

1. INTRODUCTION

Section 15126(g) of the *CEQA Guidelines* requires the following review of growth inducement:

The Growth-Inducing Impact of the Proposed Action. Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may further tax existing community service facilities, so consideration must be given to this impact. Also, discuss the characteristic of the projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.¹

Chapter 2, Project Description, presents the size and type of development that the LRDP proposes at existing UCSF sites and at a Major New Site. The individual sections on population, employment and housing discuss the main changes directly associated with the LRDP that are relevant to growth-inducing impacts. This section summarizes these main effects and then uses multiplier analysis to estimate generally the indirect and induced employment and population growth associated with implementation of the LRDP.

Indirect and induced employment and population multiplier effects are created by increased spending from new or growing economic activity. That is, an increase in UCSF activities and UCSF staff would lead to increased spending on goods and services by UCSF itself, employees, and employee households. That demand for additional goods and services would fuel the creation of new jobs in construction and other sectors providing materials and services to UCSF operations, employees and related employee households. Those economic relationships are reflected in the employment multiplier factors developed by the Association of Bay Area Governments (ABAG).²

Indirect and induced growth associated with the 1996 LRDP would be spread throughout the San Francisco Bay Area and beyond. ABAG has developed a method to estimate the extent or share of these effects that a city or county might capture.

In total, UCSF's projected employment in the San Francisco Bay Area at full buildout under the LRDP would be about 25,000, an increase of 10,000 employees, or 67 percent. Depending on the location selected for the Major New Site, UCSF's population could be

located completely in San Francisco, or the population associated with the Major New Site could be located in Alameda, or partially in Brisbane. As discussed in the Population, Housing and Employment sections of this EIR, UCSF's goal under the LRDP is to increase its supply of housing by anywhere from 219 to 344 new units.

2. PARNASSUS HEIGHTS

The LRDP proposes a net reduction of space at Parnassus Heights and an associated net decrease of 424 employees. The employees would be relocated to other UCSF facilities in San Francisco or the Bay Area. The implementation of the LRDP at Parnassus Heights would not reduce or change local regional employment. However, the six percent reduction in average daily weekday population at the Parnassus Heights campus site could result in a slight decrease in demand for local goods and services in the Parnassus Heights vicinity. However, this economic effect would be expected to be mostly offset by the demand for local goods and services of the projected increase in outpatients and visitors at this site.

The LRDP would rebuild the existing Aldea San Miguel Family Student Housing, resulting in 40 fewer units. The LRDP would also create up to 40 new student residential spaces by converting UCSF-owned buildings on Parnassus Avenue, and Irving and Fifth Streets back to residential uses.

Based on these effects, implementation of the LRDP at Parnassus Heights would limit growth-inducing effects.

3. MAJOR NEW SITE

The proposed Major New Site would create about 9,100 new jobs. Approximately 1,000 of these jobs would be existing UCSF jobs which would be transferred from existing sites. Therefore, the net new 8,100 jobs are conservatively assumed to generate one household per employee or 8,100 new households with an associated total new population of 21,900 residents in the region (using the regional average population per household factor of 2.71).³ This assumption would overstate potential impacts of the Major New Site because most new employees would be expected to be existing residents of the San Francisco Bay Area.

Using ABAG's multipliers to estimate indirect and induced employment creation, the 8,100 new jobs at the Major New Site would create a total of 9,150 indirect and induced jobs.⁴ Using ABAG's methodology of the mid-range between the indirect and induced employment multipliers to estimate growth induced within a county's boundaries⁵, the Major New Site would create a total indirect plus induced employment growth of 4,600 new jobs. Total direct plus indirect, plus induced employment associated with the Major New Site, would be 12,700 jobs in the region (8,100 plus 4,600). These additional indirect and induced jobs are part of ABAG's overall regional employment projections.

As with direct employment, the indirect and induced employment would create secondary household and population effects. Based on the same conservative household formation

assumption of one household per employee and the regional average population per household factor of 2.71 in year 2010,⁶ the 4,600 indirect and induced new jobs would create 4,600 secondary households with 12,500 new residents. The 12,700 total direct, indirect, and induced households related to development of a Major New Site would create a total of 34,290 new residents. This increase in households and population is also part of ABAG's projections for the region; i.e., both the direct UCSF-related employment and household formation, as well as secondary employment and household effects are part of ABAG's projected regional growth over the next 15+ years. As discussed in Section N, Population, Employment, and Housing, in Chapters 3 and 12, the regional housing market which includes San Francisco, San Mateo and Alameda counties is expected to be able to meet the projected UCSF-generated housing demand between 1995 and 2015.

The LRDP also anticipates development of up to 344 new family and student housing units (96 family units and 248 single students units). Using the regional population per household factor of 2.71 discussed above for the family units, the net new residential population associated with this direct increase in housing would be 508 new residents. Since UCSF employees, students and families would occupy this housing, the 508 residents would be a portion of the household and resident population estimated above.

The Major New Site could also attract development of other uses in nearby areas, but the employees associated with this development would be assumed to be a portion of the additional induced jobs discussed above. This attracted development could involve firms needing or desiring to be near a biomedical research complex, including typical office-related services, such as copy centers or retail services. Additionally, commercial biomedical product firms or biotechnology firms could select sites in close proximity to the Major New Site. Such related private development could be accommodated near the Major New Site, as part of uses designated in Brisbane Baylands, Harbor Bay Business Park or Mission Bay. Such auxiliary uses could also develop in other areas with appropriate land use designations in these cities or other cities in Alameda or San Mateo counties. The San Francisco Bay Area is already a center for biomedical and biotechnology firms.

B. UNAVOIDABLE SIGNIFICANT EFFECTS

A Draft EIR must identify those significant impacts for which mitigation measures are unavailable or ineffective in reducing the impact to less-than-significant levels.⁷ These impacts are termed significant and unavoidable in this EIR and are labeled as such in the body of the document. However, provided below is a summarized list of all unavoidable significant effects found for the LRDP at Parnassus Heights and at the Major New Site.

Parnassus Heights

Impact 4B-2. Conflict With Local Zoning (Project/Significant). Construction of replacement housing at Aldea San Miguel and the Medical Research IV (MR IV) replacement building could exceed the City of San Francisco's height limits for these sites.

Impact 4C-1. Lincoln Way and Seventh Avenue V/C Ratio Deteriorations (Project/Significant). In 2010, Lincoln Way east of 19th Avenue, and Seventh Avenue south of Lincoln Way would operate at LOS F without LRDP implementation. UCSF traffic generated by full implementation of the 1996 LRDP at Parnassus Heights would result in a further deterioration of those corridors' volume/capacity (v/c) ratios by 0.01 for an average weekday and for the am and pm peak hours. This deterioration in the v/c ratio would be a significant impact.

Impact 4C-4. Muni Route Loading (Project/Significant). Future transit demands associated with LRDP activities at Parnassus Heights would exceed current corridor capacity by about four percent. LRDP activities at Parnassus Heights in 2010 would generate approximately 368 net new transit trips per day and about 49 net new transit trips during the am peak hour and 38 trips during the pm peak hour. This would increase corridor-level transit loadings for major routes serving Parnassus Heights by about two percent when those loadings would already exceed MUNI's load factor objective.

Impact 4E-1. Construction Noise (Construction/Significant). Demolition, construction, and seismic upgrade activities resulting from implementation of the LRDP at Parnassus Heights could generate noise exceeding 80 dBA at 100 feet. This would be a temporary significant impact.

All Major New Sites

Impact 12E1-1. Construction Noise (Construction/Significant). During construction of UCSF facilities at a Major New Site, the noise generated from the construction activities would exceed the maximum limits specified by local noise ordinances. This would be a temporary but significant impact during the development of the Major New Site.

Impact 12F1-4. Contribution to Load on Hazardous Waste Management Facilities (Cumulative/Significant and Unavoidable). Development of a Major New Site in conjunction with other cumulative development that generates hazardous waste could place an additional load on hazardous waste management facilities.

Brisbane Baylands/Executive Park

Impact 12C2-1. US 101 V/C Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site at Brisbane Baylands/Executive Park would result in the deterioration of US 101 LOS F conditions by v/c ratios of 0.04 south of Cesar Chavez Street and 0.02 south of Candlestick Park connections during both the am and pm peak hours. Under year 2010 conditions without the Major New Site at Brisbane Baylands/ Executive Park, US 101 would already operate at LOS F. This deterioration of v/c ratio would be a significant impact.

Impact 12D2-2. Vehicle Operation Air Pollutant Emissions (Project/Significant). Net new vehicle trips associated with the Major New Site at Brisbane Baylands/Executive Park would generate criteria air pollutants in excess of the BAAQMD 80 lb/day Best Available Control Technology Threshold.

Impact 12E2-2. Traffic Noise Compatibility on Jamestown Avenue (Project/Significant). Noise levels along Jamestown Avenue are currently about 56dBA, and meet the 60 dBA compatibility criterion. Future traffic conditions without the Major New Site, noise levels would increase to 64 dBA, and would not meet the compatibility criterion. Traffic related to the Major New Site would increase noise levels by one dBA. This contribution to a substantial change in noise levels would be a significant effect.

Impact 12K2-1. Water Supply (Project/Significant). The Major New Site at Brisbane Baylands would increase water demand for the City of Brisbane by approximately 0.33 mgd, or 64 percent, at buildout. Other potential development in Brisbane would bring water demand to over 110 percent of capacity. The Major New Site's water demand would be a substantial portion of available water supply capacity in Brisbane, and would be considered a significant impact.

Harbor Bay

Impact 12C3-1. I-880 LOS (Project/Significant). Traffic generated by the Major New Site would cause the peak-hour LOS to deteriorate from LOS D to LOS E on I-880 north of Davis Street. This change in the LOS would be significant.

Impact 12C3-2. Miller-Sweeney Bridge, High Street Bridge, Fernside Boulevard, and Bay Farm Island Bridge V/C Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site would cause a significant deterioration in the v/c ratios on the following corridors: Miller-Sweeney Bridge, High Street Bridge, Fernside Boulevard east of Central Avenue, and Bay Farm Island Bridge (these corridors are discussed as a group because they are all within the City of Alameda and all relate to Mitigation Measure 12C3-2). Each of these corridors would operate at LOS F without the Major New Site at Harbor Bay and each would experience a v/c ratio deterioration greater than 0.01 with the Major New Site at Harbor Bay. This would be a significant project impact.

Impact 12C3-3. Davis Street V/C Ratio Deterioration (Project/Significant). Traffic generated by the Major New Site would cause the LOS E conditions in year 2010 on Davis Street west of I-880 to deteriorate by a v/c ratio of 0.09 in the am peak hour and 0.08 in the pm peak hour. Davis Street west of I-880 would already be operating at LOS E under year

2010 conditions in both the am and pm peak hours without the Major New Site at Harbor Bay. This deterioration of the v/c ratios would be a significant project impact.

Impact 12D3-2. Vehicle Operation Air Pollutant Emissions (Project/Significant). Net new vehicle trips associated with the Major New Site at Harbor Bay would generate criteria air

pollutants in excess of the BAAQMD 80 lb/day Best Available Control Technology Threshold.

Mission Bay

Impact 12C4-1. US 101 and I-280 V/C Ratio Deterioration (Project/Significant). Under year 2010 conditions with the Major New Site at Mission Bay, the v/c ratios on the following corridors would deteriorate: US 101 south of Mariposa Street, US 101 south of Cesar Chavez Street and I-280 south of Mariposa Street. Those corridors would already be expected to operate at LOS F, without traffic generated by the Major New Site. These deteriorations of the v/c ratios are considered significant impacts of the project.

Impact 12C4-3. Cesar Chavez Street V/C Ratio Deteriorations (Project/Significant). Traffic generated by the Major New Site would result in the deterioration of LOS E conditions on Cesar Chavez Street west of Folsom Street by a v/c ratio of 0.01 during both the am and pm peak hours. Traffic from the Major New Site would also result in the deterioration of LOS E conditions on Cesar Chavez Street west of Evans Avenue by a v/c ratio of 0.02 during the am peak hour and 0.03 during the pm peak hour. Both of these segments of Cesar Chavez Street would already operate at LOS E under year 2010 conditions without the Major New Site. This deterioration of the v/c ratios would be a significant impact.

Impact 12D4-2. Vehicle Operation Air Pollutant Emissions (Project/Significant). Net new vehicle trips associated with the Major New Site at Mission Bay would generate criteria air pollutants in excess of the BAAQMD 80 lb/day Best Available Control Technology threshold.

C. SIGNIFICANT IRREVERSIBLE CHANGES

CEQA Guidelines (Sections 15126[f] and 15127) require that a Draft EIR must identify significant irreversible environmental changes. An impact would fall into this category if:

- the project would involve a large commitment of non-renewable resources;
- the primary and secondary impacts of a project would generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- the project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- the project would wastefully consume resources such as energy.

As discussed in this EIR, UCSF development under the LRDP would commit urban lands presently planned for commercial, residential or industrial development to UCSF uses. This conversion would have direct and indirect effects on the surrounding environment, including a commitment of developable lands, conversion and replacement of existing land uses at sites

generally limited in local plans for the types of user contemplated in the LRDP, and a potential loss of cultural resources.

Implementation of the LRDP would also result in an irreversible commitment of energy resources, primarily in the form of fossil fuels, including fuel oil, natural gas, and gasoline or diesel fuel for automobiles and construction equipment. The consumption or destruction of other non-renewable and slowly renewable resources would also result during construction and operation of the UCSF facilities under the LRDP. These resources include, but are not limited to: lumber, concrete, sand and gravel, asphalt, masonry, metals and water. An increased commitment of public services would also result from the LRDP implementation, such as for water and waste disposal.

D. CUMULATIVE IMPACT SUMMARY

Cumulative impacts are analyzed in this EIR on the basis of site and environmental topic. This section of the EIR describes how the LRDP's potentially significant cumulative impacts are analyzed in Chapter 4 for Parnassus Heights, Chapter 12 for the Major New Site, and Chapter 13 for Overall LRDP Impacts.

The *CEQA Guidelines* defines a cumulative impact as that resulting from the combined effect of a proposed project plus all other reasonably foreseeable development. CEQA requires the following points for an assessment of cumulative impacts.

- Cumulative impacts must be discussed when they may be significant.
- The discussion may be more general than that for the individual project impacts, but that the discussion should reflect the potential extent, severity, and probability of the impact.
- The analysis can be based on a list of reasonably foreseeable projects or projections from a General Plan or a regional planning agency.
- The EIR must propose reasonable options for mitigating or avoiding any significant cumulative impacts, noting that for some cumulative impacts the only feasible mitigation may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project by project basis.

The EIR identified and analyzed potentially significant cumulative impacts for the following environmental topics on the basis of projections contained in adopted General Plans or in regional studies, such as the Metropolitan Transportation Commission regional traffic model: traffic, air quality, noise and hazardous materials. The other environmental topics either do not normally have the potential to combine with effects from other projects to produce cumulative impacts (e.g., land use, visual quality), or the potential for significant effects does not exist for this project (e.g., most public services and utilities, etc.).

The projections of cumulative traffic mentioned above are incorporated into the air quality and noise analyses for impacts that are based on total vehicle trips. For Air Quality, vehicle trips from cumulative development are the basis for the assessment of roadside ambient carbon monoxide impacts. For Noise, vehicle trips from cumulative development are the basis for the assessment of traffic noise impacts on study corridors.

The hazardous materials assessment does not use specific quantitative projections of cumulative waste generation and disposal. Instead, the analysis assumes that any future development of hazardous waste generating uses would cumulatively combine to create a significant effect on management and disposal resources due to the little remaining state-wide capacity and the lack of an approved replacement facility.

In Chapter 13, Overall LRDP Impacts, the EIR found that there are no accepted methodologies or standards by which to assess the cumulative toxic air emission impacts of all potential stationary and mobile sources of toxic air emissions from the LRDP. As a result, the EIR concluded that the potential cumulative impacts of toxic air emissions are too speculative to evaluate.

The specific cumulative impacts analyzed in this EIR can be found in the chapters and sections on the environmental topics discussed above.

E. EFFECTS FOUND NOT TO BE SIGNIFICANT

UCSF elected to not prepare an Initial Study because it determined that an EIR was clearly required for the LRDP. UCSF prepared an environmental checklist for the Notice of Preparation (NOP) showing effects that could be significant and that would be addressed in the EIR, and effects that could not be potentially significant. As shown in the NOP in Appendix 1, all effects were considered to be potentially significant and are therefore addressed in this EIR except as noted below.

The following effect was determined to lack potential for significance, and was therefore not analyzed in the EIR.

- Archaeological resource impacts were not analyzed at Parnassus Heights. Cultural resource assessments for this site have been conducted in previous environmental reviews and indicate that no archaeological resources exist and no potential exists to encounter archaeological resources at this site. Nothing has changed on the site since the prior environmental reviews that would alter this assessment, and the development at Parnassus Heights under the LRDP would not create such an impact because it involves the demolition of existing buildings, and some rebuilding on those sites.

1. California Office of Planning and Research, *CEQA – California Environmental Quality Act – Statutes and Guidelines*, June 1994, p. 93.
2. Association of Bay Area Governments, *1987 Input-Output Model and Economic Multipliers for the San Francisco Bay Region*, Working Paper 95-3, March 1995, p. 18.
3. Association of Bay Area Governments, *Projections '96*, December 1995, p. 85.
4. Association of Bay Area Governments, *1987 Input-Output Model and Economic Multipliers for the San Francisco Bay Region*, Working Paper 95-3, March 1995, p. 48. The most representative sector for UCSF biomedical research facility is Education Services, Non-Commercial R&D, Non-Prof., with a Type I multiplier (direct + indirect) of 1.08 and a Type II multiplier (direct + indirect + induced) of 2.05.
5. Association of Bay Area Governments, *1987 Input-Output Model and Economic Multipliers for the San Francisco Bay Region*, Working Paper 95-3, March 1995, p. 18. The midpoint multiplier between Type I and Type II multipliers would be 1.56.
6. Association of Bay Area Governments, *Projections '96*, December 1995, p. 85.
7. *CEQA Guidelines*, Section 15126(b) and Public Resources Code (PRC) Section 21000(b).

Alternatives

Chapter 15: Alternatives

A. INTRODUCTION

This chapter evaluates alternatives to the proposed 1996 LRDP and, for each alternative, identifies impacts relative to those of the 1996 LRDP. The primary intent of the alternatives evaluation, as stated in Section 15126(d) of the *CEQA Guidelines*, is to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Further, the *Guidelines* state that the "discussion of alternatives shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." A variety of factors affect the feasibility of an alternative, including but not limited to the following: site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and site accessibility and control (*CEQA Guidelines*, Section 15126(d)(5)(A)).

The alternatives selected for analysis were first tested against the Goals and Objectives of the 1996 LRDP which are discussed in Chapter 2, Project Description, Section B, Project Objectives. In summary, the LRDP is intended to guide the physical development of UCSF through year 2010/11, to meet current and future space needs of about 3.43 million gross square feet (gsf) for the maintenance and growth of UCSF by providing space for the following purposes:

- **Decompression.** Relieve the excessive crowding at Parnassus Heights;
- **Expansion.** Provide new space for existing meritorious programs and new programs; and
- **Consolidation.** Reduce the scattering of academic and administrative support units from many dispersed sites.

The strategy of the 1996 LRDP to meet these goals is to:

- **Reinvest In Existing Sites.** Implement ongoing projects with approved environmental reviews at Parnassus Heights, UCSF/ Mount Zion and Laurel Heights, and to carry out necessary infrastructure, code and seismic improvements at all existing sites, and

- **Establish A Major New Campus Site.** Provide space for decompression, expansion and consolidation, especially for programs now at Parnassus Heights, and establish a major new campus site of about 2.65 million gsf.

A state entity as project sponsor may have a heightened responsibility over a private developer to evaluate and consider alternative locations for the project because the Supreme Court in the case commonly known as *Goleta II* found that, "alternative sites may be more feasible, more often, when the developer is a public rather than a private agency."

UCSF extensively evaluated alternative locations for its development in preparing the 1996 LRDP. The LRDP itself proposes three different locations for a major new campus site (referred to in this EIR as Major New Site). The EIR analyzes the environmental impacts associated with a Major New Site at each of those locations at an equal level of detail. Furthermore, UCSF considered over 100 development sites in the LRDP planning process. UCSF's assessment of alternate locations is presented below in Section E, Alternative Locations, and Section F, Other Alternative Sites Considered. Section O of Chapter 12, Major New Site, summarizes the differences in environmental impacts among the three potential Major New Sites.

The selection of the range of alternatives is governed by the "rule of reason," which requires an EIR to identify and analyze alternatives capable of eliminating or reducing to a level of insignificance the environmental impacts associated with the proposed plan or project. An EIR need not consider alternatives that would be remote or speculative to implement, nor does it need to evaluate minor variations of the same alternative. CEQA requires at minimum that the No Project Alternative and its impacts be evaluated, and that an environmentally superior alternative be identified in cases where the No Project Alternative is the environmentally superior alternative.

This chapter analyzes four alternatives to the LRDP having the potential to reduce the significant environmental effects of the proposed LRDP as follows:

- No Development Alternative
- Dispersed Locations Alternative
- Reduced Project Alternative -- Major New Site and Parnassus Heights
- Two-Satellite Alternative

Section F, Other Alternative Sites Considered, reviews UCSF's consideration of over 100 potential development sites and the site-screening process used during preparation of the LRDP.

In accordance with *CEQA Guidelines* Section 15126 (d)(4), these alternatives are evaluated for their merits relative to the proposed action, 1996 LRDP and any larger or different impacts of an alternative are "...discussed but in less detail than the significant effects of the project as proposed. (Chapter 14 lists the potential significant adverse effects of the 1996 LRDP "project.")"

B. NO DEVELOPMENT ALTERNATIVE

1. DESCRIPTION

Existing Sites

Under this alternative, UCSF would continue approved development at Parnassus Heights under the 1982 LRDP, as amended. This includes the Parnassus Heights Central Utilities Plant. Because there would be pressure for more intensive use of existing UCSF sites under this alternative, it is assumed that the current space ceiling coverage at Parnassus Heights of 141,299 gsf would continue.

This alternative would include the same development at UCSF/Mount Zion described in the 1990 and 1992 Amendments to the 1982 LRDP and at Laurel Heights described in the 1995 Amendment to the 1982 LRDP. Environmental review of these amendments has already been completed. No further specific development activities are covered by the 1982 LRDP, as amended. New development that the proposed 1996 LRDP includes for the Major New Site, Parnassus Heights, San Francisco General Hospital (SFGH) or elsewhere would not be undertaken. Demolition of seismically inadequate facilities would not occur. Patient and visitor patterns at Parnassus Heights would be expected to change with new health care delivery patterns. Given the trend toward outpatient services, increasing outpatient volumes at Parnassus Heights would be expected to cause the average daily population to exceed 16,000.

Under this alternative, there would be no UCSF development at a Major New Site, so none of the projected impacts analyzed in Chapter 12 for the three potential Major New Sites would occur due to UCSF activities. Since existing plans approved by local jurisdictions at each Major New Site would allow development independent of UCSF, these sites would be expected to build out through the actions of other project sponsors. This would create environmental impacts at those sites, perhaps over a different or longer time period. The type and extent of such impacts would depend on the type and extent of development that would eventually occur at the three locations. The majority of the environmental impacts resulting from the LRDP are related to construction of structures at those locations and the activities of UCSF employees and visitors regardless of UCSF's proposed institutional uses. Thus, impacts of development by other project sponsors would generally be similar to those associated with implementation of the LRDP. No additional UCSF sites in San Francisco and the Bay Area would be acquired. Further amendments to the 1982 LRDP would not be anticipated. Employment would remain at levels similar to existing levels, or could drop if the lack of new UCSF space were to lead to attrition in faculty or researchers who may seek positions at institutions with more adequate facilities.

2. ENVIRONMENTAL ISSUES

a. Introduction

Because the environmental effects resulting from UCSF projects at Laurel Heights and UCSF/Mount Zion, as well as from completion of the Parnassus Central Utilities Plant at Parnassus Heights would be as previously analyzed in the EIRs on those projects, and because there would be no Major New Site, the primary focus of this No Development Alternative analysis is on the differences at Parnassus Heights between this alternative and development under the 1996 LRDP. The following sections evaluate the environmental impacts of this alternative in more detail.

b. Land Use

Development of approved projects under the 1982 LRDP would not present significant land use impacts. Previous environmental review of the 1982 LRDP and approved projects at Parnassus Heights, UCSF/Mount Zion and Laurel Heights found no significant impacts on land use and planning requirements (with the exception of potentially exceeding San Francisco Planning Code requirements for height and bulk limits at UCSF/Mount Zion). This alternative would avoid all UCSF land use effects associated with Major New Site development. This alternative would maintain pressure for more intensive use of all existing sites by UCSF. For example, at Parnassus Heights, the No Development Alternative would result in the continuation of the existing space ceiling coverage of 141,299 gsf. Although land use conditions at Parnassus Heights would generally remain the same, this alternative would be inconsistent with existing University policies because it would not reduce the total gsf at Parnassus Heights as would the 1996 LRDP.

c. Traffic/Circulation/Parking

At Parnassus Heights, this alternative would increase traffic impacts on study corridors over the level expected with the 1996 LRDP because existing space would be maintained rather than reduced. There would be no reduction in staff and faculty; visitor and outpatient population would increase by over 900 persons as with the LRDP. Trip generation under this alternative would increase therefore by about 16 percent over that projected for 1996 LRDP. This increase would not change levels of service on analyzed corridors that are projected to operate at Level of Service (LOS) D, E or F under existing or future conditions in 2010. With this alternative, volume-to-capacity (v/c) ratios in two corridors (Lincoln Way and Seventh Avenue) could deteriorate by .01 or more, and this would be considered a significant impact. LRDP-related Parnassus Heights traffic would adversely effect v/c ratios on these same corridors.

Parking demand would increase over that associated with the LRDP, because there would be additional outpatients and visitors whose parking demand would not be offset by reductions in staff and faculty.

d. Air Quality

Stationary source effects at Parnassus Heights with this alternative would be the same as existing conditions and would be marginally higher than those under the 1996 LRDP. Emissions would not be expected to exceed criteria air pollutant thresholds. The No Development Alternative would continue the existing amount of research space at the Parnassus Heights site. The health risk for toxic air contaminants was modeled in previous studies of the Parnassus Height site and would be less than significant with respect to cancer risk. Toxic air contaminant emissions would be incrementally greater for this alternative than for the LRDP because the amount of research space would not decrease as with the LRDP.

The increased traffic generated by this alternative would increase related mobile emissions of criteria air pollutants. Those emissions, in the context of conditions on nearby road corridors and the regional air basin, would not be expected to cause violations of air quality standards. Regional air quality conditions are projected to improve by year 2010, as a result of vehicle controls and reformulated fuels. The significance of toxic air contaminant emissions from mobile sources generated under this alternative, and the cumulative effects of regional increases in toxic air contaminant emissions due to cumulative projects would be unknown.

e. Noise

New significant noise impacts from stationary equipment at Parnassus Heights would not be expected to occur under this alternative. Traffic noise is projected to be less than significant with activities under the 1996 LRDP. While traffic volumes near Parnassus Heights would be higher with this alternative, compared to those with LRDP activities, the volumes would not be expected to generate noise levels exceeding the 3 dBA significance threshold on road corridors in the area. A doubling of traffic volumes is generally necessary to increase sound levels by 3 dBA.

f. Hazardous Materials

With this alternative, research activities would be expected to remain at present levels, compared to the proposed 1996 LRDP which would reduce research space at Parnassus Heights. Therefore, hazardous material use would remain the same. With this alternative there would be no demolition of buildings at Parnassus Heights, with potential removal of asbestos or PCBs. There would be no increase in use of hazardous materials or hazardous wastes, and thus no increased demand on hazardous waste management facilities. Older research space at Parnassus Heights would not be replaced with state-of-the-art buildings with updated safety systems; however, some safety renovations would occur.

Existing biomedical research activities at the Parnassus Heights site under this alternative would continue to generate low-level radioactive waste and chemical waste. Under this alternative, as with the LRDP, lack of long-term disposal sites for low-level radioactive waste would remain a significant cumulative effect.

g. Geology and Seismicity

At Parnassus Heights, the geo-seismic impacts would be greater under this alternative than for the 1996 LRDP because the demolition and replacement of seismically inadequate buildings would not occur and the population exposed to seismic risks would be higher. Any structural renovation under this alternative would be subject to the requirements of the 1995 University Policy on Seismic Safety, or the San Francisco Building Code, if more stringent. UC Hall is rated poor and would require substantial seismic upgrade. UCSF has studied a number of structural engineering options and all, including staged renovation, would require the building occupants to vacate UC Hall and relocate to new or leased temporary surge space. Under the No Development Alternative, no new surge space could be developed into which to current occupants; therefore, it is assumed no seismic upgrade of UC Hall could occur. Foregoing the retrofit would not be consistent with University policy and would expose occupants to greater seismic risk. This would be considered a significant impact.

h. Hydrology and Water Quality

Previous analysis of the 1982 LRDP and of approved projects at UCSF/Mount Zion and Laurel Heights indicated that no significant impacts would occur on hydrology and water quality at UCSF's existing sites. Therefore, as with the proposed LRDP, as with continued activities at Parnassus Heights under this alternative would not be expected to affect hydrology and water quality.

i. Vegetation and Wildlife

Previous analysis in EIRs for approved projects at UCSF/Mount Zion and Laurel Heights and the Parnassus Heights Central Utilities Plant concluded that no significant impacts would occur on vegetation and wildlife at UCSF's existing sites. Development of UCSF/Mount Zion and Laurel Heights and continued activities at Parnassus Heights under this alternative would not be expected to affect vegetation and wildlife. Demolition and new construction of the Aldea San Miguel Student Housing adjacent to the Mount Sutro open space proposed under the LRDP would not occur and all existing building footprints would remain in use. As with the LRDP, no sensitive habitat or species would be effected.

j. Public Services

Under this alternative, UCSF's existing demands on police protection, fire services, parks and recreation space, schools, and solid waste would remain relatively constant. Because outpatient visits to Parnassus Heights under this No Development Alternative could increase beyond the 16,000 average daily population policy goal of the 1996 LRDP, some additional demand for services would occur. Demands generated by patients and visitors would not significantly reduce service response times or resource and would be a less than significant impact. This alternative would reduce regional UCSF public services demand from those associated with the 1996 LRDP, as no Major New Site would be developed.

k. Utilities and Infrastructure

Because utility demands are primarily related to the amount of developed space and the number of occupants, UCSF's water use, wastewater generation, electricity use, and natural gas use would remain relatively constant to existing demand under this alternative and would increase slightly at Parnassus Heights as compared to the LRDP due to increases in outpatient visits. This would be a less than significant impact. This alternative would reduce regional UCSF utility and infrastructure impacts from those associated with the 1996 LRDP and development of a Major New Site.

l. Visual Quality

This alternative would not result in any new visual quality impacts, because there would be no new development not previously analyzed at UCSF/Mount Zion, Laurel Heights and Parnassus Heights. Under this alternative, the Surge building and Woods building at Parnassus Heights would not be demolished and their footprints made part of the open space reserve, which is a beneficial effect of the LRDP. It would avoid all regional visual quality impacts associated with UCSF development at a Major New Site, but those impacts would occur with development by others.

m. Cultural Resources

Previous analysis of the 1982 LRDP and of approved projects at UCSF/Mount Zion and Laurel Heights concluded that no significant impacts would occur on cultural resources at UCSF's sites. Therefore, this alternative would not have an effect on cultural resources. In addition, this alternative would not result in the demolition of UC Hall at Parnassus Heights. UC Hall is a 1917 Beaux-Arts Structure, designed by San Francisco architect Lewis Hobart; however, the building has not been architecturally or historically rated. This alternative would avoid cultural resource impacts associated with UCSF development at a Major New Site.

n. Population, Employment, and Housing

With this alternative, UCSF population would be greater than the LRDP projection of 16,000 average daily population at the Parnassus Heights site. The number of outpatients may increase as with the LRDP and employment would remain the same (except if faculty or researchers were to seek positions at other institutions with more adequate facilities). The change in UCSF housing, including rebuilding of the Aldea San Miguel Family Student Housing at Parnassus Heights would not occur. UCSF would continue to accommodate about 14 percent of enrolled students in UCSF housing, compared to up to 25 percent with the proposed 1996 LRDP. No UCSF development and therefore no increase in UCSF employment would occur at SFGH or the Major New Sites.

3. CONCLUSION

The No Development Alternative would not meet the 1996 LRDP's main objectives to provide up to 3.43 million gsf of space for decompression, expansion, and consolidation for long-term UCSF growth. It would provide none of the space UCSF deems necessary to develop facilities which will ensure UCSF's role as a preeminent medical research facility, nor would it enable UCSF to reduce seismic risk through the demolition of seismically inadequate buildings. This alternative would also not enable UCSF to relocate programs from the Parnassus Heights site and reduce the space ceiling overage.

C. DISPERSED LOCATIONS ALTERNATIVE

1. DESCRIPTION

Under this alternative, UCSF would meet its identified space need of 3.43 million gsf through continued growth under the 1982 LRDP at dispersed locations throughout the San Francisco Bay Area as space needs develop and market opportunities arise for additional space. The concept of a dispersed or "decentralized" approach to future growth is provided for in the 1982 LRDP. This could involve a range of options, such as the purchase of an existing hospital or affiliations or mergers with other research, educational and health service operations. Purchase of existing hospitals could involve conversion of such buildings to new UCSF uses, such as research.

In total, the land use and population profile for UCSF under this alternative would be similar to that of the 1996 LRDP, although some variations would result because space would be located at smaller, dispersed sites. This alternative could result in a need for greater total floor area, because of inefficiencies inherent in dispersed development and because consolidation of existing sites would not occur. No Major New Site would be developed. This alternative would include activities approved under the amended 1982 LRDP, such as at the UCSF/Mount Zion and Laurel Heights sites, and the Central Utilities Plant at Parnassus Heights.

By failing to meet UCSF's space need in a coherent, planned manner, this alternative would intensify pressure to maintain or increase space at Parnassus Heights because small satellites cannot accommodate multiple function programs which are considered the cornerstone of UCSF's academic success. As with the proposed 1996 LRDP (and with the No Development Alternative), this alternative assumes increased outpatient and visitor activities at the Parnassus Heights site. In addition, UCSF would likely pursue amendments to the 1982 LRDP on a project-by-project basis — with commensurate increases in faculty and staff — in order to address code-required improvements to obsolete buildings and utility systems, and to renovate or replace seismically vulnerable facilities. As a result, this alternative would maintain the current space ceiling overage at Parnassus Heights and might exceed the current overage on a temporary basis.

2. ENVIRONMENTAL ISSUES

a. Introduction

As this alternative would not include a Major New Site, none of the potential significant effects related to UCSF development would occur at Brisbane Baylands/Executive Park, Harbor Bay or Mission Bay. However, future development at each of those sites would occur with other land uses promoted by other project sponsors as discussed in Section B, No Development Alternatives. Therefore, this alternative, in the long term, would not avoid the site-related or cumulative environmental effects identified in this EIR for those sites. The effects of development at UCSF/Mount Zion and Laurel Heights have previously been analyzed, as have the effects of Central Utilities Plant at Parnassus Heights. The environmental issues for this alternative, therefore, emphasize dispersed new sites and some intensification of UCSF use at Parnassus Heights. This section compares the impacts of the Dispersed Locations Alternative with the impacts of the 1996 LRDP.

b. Land Use

With the Dispersed Locations Alternative, the Parnassus Heights site would continue to exceed the space ceiling; the current overage would not be reduced. This alternative would maintain or intensify uses at Parnassus Heights, unlike the LRDP which would reduce the overage.

Sites leased or purchased around the San Francisco Bay Area under this alternative could require new construction or a combination of reuse, demolition and reconstruction to meet UCSF needs. As is the case with the proposed 1996 LRDP, the implementation of this alternative would use local planning and zoning requirements to identify the level of significance of UCSF's land use. Land use impacts would vary according to the location and planning jurisdiction. However, there is an increased likelihood of land use impacts related to incompatibility of uses because the Major New Sites studied in the LRDP represent large parcels of land where major mixed-use developments have been planned by the local jurisdictions. Sites chosen under this alternative would not be as likely to share the same characteristics as the Major New Sites. Use of an existing hospital or other health service operation would not significantly intensify existing land use because no new institutional use would result. However, conversion of non-research of space to laboratory research with additional rooftop fume hood exhaust stacks could exceed permitted height limits prescribed for the building.

c. Traffic/Circulation/Parking

At Parnassus Heights, this alternative would increase traffic impacts on study corridors because existing space would be maintained, there would be no change or perhaps a small increase in staff and faculty, and the visitor and outpatient populations would continue to increase. Trip generation under this alternative would increase by 16 percent or more over that projected for the 1996 LRDP. This increase would not change levels of service on analyzed corridors that are projected to operate at LOS D, E or F under existing or future 2010 conditions. LRDP-

related traffic would have a significant effect on v/c ratios on two corridors, Lincoln Way and Seventh Avenue. With this alternative, v/c ratios in these corridors could also deteriorate by 0.01 or more; this would be a significant impact.

Parking demand would increase with this alternative because there would be additional outpatients and visitors and possibly employees whose parking demand would not be offset by reductions in staff and faculty as proposed with the LRDP.

Dispersed UCSF growth at locations in San Francisco and elsewhere in the Bay Area would generate traffic and parking impacts at those locations. Those effects cannot be projected and would need to be evaluated for specific locations when selected. Those effects would be expected to reflect land use plans in place at those locations, and regional projections for overall traffic growth. Traffic impacts related to concentrating UCSF population at the Major New Site could potentially be avoided; however, the overall traffic increase on regional bridges, freeways and arterials from UCSF uses would be the same as with the LRDP, only the traffic would be more dispersed

d. Air Quality

Stationary source effects at Parnassus Heights with this alternative would be similar to those with the proposed 1996 LRDP and would not be expected to exceed criteria air pollutant thresholds. The No LRDP Alternative would continue the existing amount of research space at the Parnassus Heights site. The risk for toxic air contaminant emissions was modeled in previous studies of the Parnassus Heights site and would be less than significant with respect to cancer risk. Toxic air contaminant emissions would be incrementally greater for this alternative than for the LRDP because the amount of research space would not decrease as with the LRDP.

The increased traffic generation near the Parnassus Heights site, together with emissions from vehicle trips associated with other dispersed sites, in this alternative would increase related emissions of criteria air pollutants. Those emissions, in the context of conditions on nearby road corridors and the regional air basin, would not be expected to cause violations of air quality standards. Regional air quality conditions are projected to improve by year 2010, as a result of vehicle controls and reformulated fuels. The significance of toxic air contaminant emissions from mobile sources generated under this alternative, and the cumulative effects of regional increases in toxic air contaminant emissions due to cumulative projects, would be unknown.

e. Noise

While traffic volumes near Parnassus Heights due to increased staff and outpatient/visitor populations would be higher with this alternative compared to those with proposed 1996 LRDP activities, the volumes would not be expected to generate noise levels exceeding the 3 dBA significance threshold on road corridors in the area. A doubling of traffic volumes is generally necessary to increase sound levels by 3 dBA. Noise conditions associated with traffic generated at other dispersed sites would also not be expected to generate significant effects.

Similar to the 1996 LRDP, noise from equipment on roofs or other exposed areas could be significant if appropriate measures were not employed to mitigate noise impacts. Use of an existing hospital, research, educational or other health service operation could generate short-term significant impacts at nearby sensitive receptors due to construction or renovation activities to convert existing structures for UCSF use.

f. Hazardous Materials

With this alternative, research activities would be expected to remain at present or somewhat increased levels, compared to the 1996 LRDP, which would reduce research space at Parnassus Heights.

With this alternative, the 1982 LRDP would be carried out on a project-by-project basis; demolition and new construction of buildings at Parnassus Heights would be less likely with an associated reduction in potential asbestos or PCBs exposure during removal. There could be a small increase in use of hazardous materials or hazardous wastes, and thus an increased demand on hazardous waste management facilities. Older research space at Parnassus Heights may not be replaced with state-of-the-art buildings with updated safety systems; however, some safety renovations would occur. UCSF activities at the Parnassus Heights site would continue to generate low-level radioactive waste and chemical waste under this alternative. There would be no change in demand on waste management facilities.

Under this alternative, UCSF activities at locations throughout the San Francisco Bay Area would increase use of hazardous materials and generation of hazardous wastes, increase construction and/or demolition activities, and increase the load on hazardous waste management facilities. In total, these effects would be similar to those of the 1996 LRDP. Dispersed site locations would mean more locations for the use of hazardous materials, and a greater requirement for coordination and control. As with the LRDP, most potential adverse effects could be mitigated to less than significant levels.

Lack of long-term disposal sites for low-level radioactive waste would remain a significant cumulative effect.

g. Geology and Seismicity

Under this alternative, the geo-seismic impacts at the Parnassus Heights site could be greater than for the LRDP because the demolition and replacement of seismically inadequate buildings may not occur and the population exposed to such risks would be higher than under the 1996 LRDP. Any structural renovation or new construction with this alternative would be subject to the requirements of the 1995 University Policy on Seismic Safety, requiring compliance with the state building code or the local building code, if more stringent. Implementation of those measures would reduce the geo-seismic impacts of this alternative to a less-than-significant level.

At dispersed sites, it would be expected that substandard buildings would be renovated prior to occupancy and new construction would meet current standards. Impacts would generally be similar to those at the Major New Sites.

h. Hydrology and Water Quality

Physical changes at Parnassus Heights would occur through approval of individual projects and total demolition and new construction activities would likely be less than with the 1996 LRDP. As with the LRDP proposals, no significant hydrology and water quality impacts would occur.

Sites acquired or leased by UCSF around the San Francisco Bay Area could require new construction or a combination of demolition and reconstruction to meet UCSF needs. Individual construction projects are unlikely to have significant impacts, such as erosion and sedimentation, or increased urban pollutant load, because they would be smaller than the Major New Site and most likely involve redevelopment of existing facilities on urban sites.

Impacts associated with the Major New Site under the LRDP would occur at one location, whereas impacts associated with the Dispersed Locations Alternative would occur at multiple sites. Any hydrology and water quality impacts that would occur, could likely be mitigated to a less than significant level.

i. Vegetation and Wildlife

As with the 1996 LRDP, no significant impact to vegetation and wildlife at Parnassus Heights would occur with this alternative.

New UCSF development at dispersed sites would require review of local vegetation and wildlife conditions at a specific site, but potential effects would likely be less than for the LRDP, depending on the sites selected, or could be avoided without development of a Major New Site.

j. Public Services

With this alternative, public service demands at Parnassus Heights would exceed those projected under the 1996 LRDP due to patient and visitor population increases at Parnassus Heights. As with the 1996 LRDP, those effects would not be expected to be significant.

This alternative would eliminate public service demands at the Major New Site. However, since UCSF's projected space need of 3.43 million gsf would ultimately be met at dispersed sites throughout the Bay Area, increased demands on police, fire, parks and recreation, schools, and solid waste would occur at dispersed UCSF sites. These effects could be similar to those identified for the Major New Site or more severe depending on the site locations. Demands on the UCPD could increase because of physical distances among dispersed sites. This would not be considered a significant impact.

k. Utilities and Infrastructure

Because utility demands are primarily dependent upon the amount of space developed and the number of occupants of that space, utility demands at Parnassus Heights under this alternative would be similar to current conditions, and would be higher than those for the 1996 LRDP, because space at Parnassus Heights will not be reduced under this alternative. Demand under this alternative would not significantly reduce service response times or resources and would have a less-than-significant impact.

UCSF's space need of 3.43 million gsf would ultimately be met at sites throughout the Bay Area, and water, wastewater, electricity, and natural gas demands would occur at many UCSF sites. Overall total demand would be similar to that identified for the 1996 LRDP, including the Major New Site.

l. Visual Quality

Physical changes at Parnassus Heights would likely be less than under the 1996 LRDP and visual impacts would be less than significant.

New UCSF sites throughout the San Francisco Bay Area could require new construction or a combination of demolition and reconstruction to meet UCSF needs. Depending upon the specific locations of UCSF development, visual quality could be affected by the appearance, character, size and bulk, and light and glare of completed buildings. Renovation or new construction of facilities in San Francisco could create new shadows on protected public land uses; however, it is assumed shadow effects could be mitigated to less-than-significant levels. Dispersal of development under the Dispersed Locations Alternative would raise the potential for multiple visual quality impacts at several locations. These would not be expected to generate significant adverse effects.

m. Cultural Resources

Impacts on cultural resources at Parnassus Heights would be less than significant as with the 1996 LRDP.

Depending on the specific locations of dispersed development under this alternative, cultural resources could be disturbed during construction activities. Depending on the site, location and existing resources, additional impacts under this alternative could include disturbance of architectural resources or demolition of historic buildings. Therefore, significant impacts of potential disturbance of prehistoric and historic sites under this alternative could be greater than those under the 1996 LRDP as the Major New Sites are not anticipated to have significant cultural effects.

n. Population, Employment, and Housing

The LRDP would not generate significant population, employment or housing impacts. At Parnassus Heights, this alternative could have higher employment and lower housing capacity than the LRDP. It would have over 400 more employees than the LRDP because there would be no reduction in UCSF space and employees at Parnassus Heights. It would house the existing 14 percent of enrolled students in comparison to the up to 25 percent proposed with the LRDP.

This alternative would create the same direct employment, household and population increases as the 1996 LRDP. These jobs and secondary housing and population effects would be dispersed throughout San Francisco and the Bay Area. This alternative's increased demand for housing would be the same as under the LRDP and could be met by the anticipated regional supply of housing. The LRDP housing proposals at Parnassus Heights or near the Major New Site would not occur under this alternative.

3. CONCLUSION

The Dispersed Locations Alternative would partially achieve the 1996 LRDP's major objective to provide about 3.4 million gsf of space for UCSF. However, it would not achieve the goals of decompression or space consolidation. This alternative would disperse environmental impacts of UCSF development throughout San Francisco and the Bay Area.

This alternative also would create higher operational costs and inefficiencies in staffing, services and inter-site travel due to the decentralized locations of UCSF operations compared to the LRDP. It would achieve most project objectives, but it would do so at the cost of efficiency and loss of the opportunity for the desirable interaction among UCSF faculty and staff involved in teaching, research and clinical care.

D. REDUCED PROJECT ALTERNATIVE

1. DESCRIPTION

The Reduced Project Alternative would be similar to the proposed 1996 LRDP, but the Major New Site would be a 925,000-gsf research campus, instead of 2.65 million gsf as proposed in the LRDP. Except for size, the planning principles and objectives would be the same as those projected in the LRDP for the Major New Site. For illustrative purposes and for impact assessment, this alternative considers as a reduced Major New Site the land use and user profile of the Executive Park portion of the Major New Site at Brisbane Baylands/Executive Park. This Reduced Project Alternative would be considered at the Brisbane Baylands portion of the site (and not at Executive Park which is fully analyzed at this size under the 1996 LRDP), Harbor Bay or Mission Bay. Under this alternative, UCSF would not develop a separate logistics building at the new site, and would not consolidate warehouse or laundry functions at the new site. Each building at the smaller new site would include logistics space, such as materiel

management. At Brisbane Baylands, where no infrastructure has yet been extended to the site, this alternative would include a separate utilities plant.

This alternative also assumes that demolition and selective replacement at Parnassus Heights would occur to reduce total Parnassus Heights space by 134,094 gsf to meet the space ceiling of 3.55 million gsf. In contrast, the LRDP would reduce the existing space ceiling coverage by about 69,039 gsf. The proposed 1996 LRDP policy to maintain average daily population at 16,000 persons or less would be the same under this alternative.

2. ENVIRONMENTAL ISSUES

a. Introduction

This alternative assumes that UCSF activities at UCSF/Mount Zion, Laurel Heights, San Francisco General Hospital, and other UCSF sites would be as proposed in the 1996 LRDP. Environmental impacts of the Reduced Project Alternative which differ from those of the 1996 LRDP could therefore occur at Brisbane Baylands, Harbor Bay or Mission Bay, and at Parnassus Heights.

b. Land Use

This alternative would develop a Major New Site about one-third the size of the Major New Site proposed in the 1996 LRDP. The land use impacts of the Major New Site as reviewed in this EIR relate to location rather than size. As a result, reducing the size of the Major New Site would not change the potential land use and planning impacts at the Major New Site or at Parnassus Heights.

By reducing space at the Parnassus Heights site by 141,299 gsf, this alternative would meet The Regent's space ceiling policy. However, overall land use character at Parnassus Heights would not change from existing character, because the site would maintain the same uses. Meeting the space ceiling through reduction of space at Parnassus Heights would not avoid any significant impacts of the 1996 LRDP.

c. Traffic/Circulation/Parking

Under this alternative, UCSF development at Brisbane Baylands, Harbor Bay or Mission Bay would be reduced by about 65 percent, with a proportional reduction in traffic and parking impacts. Although the reduction in UCSF use at a Major New Site would be substantial, other development would be expected to occur at each of the sites. Although UCSF's contribution to adverse level of service changes at those sites would be reduced, future traffic conditions at or near these sites in year 2010 conditions could be expected to be as described for the LRDP.

With this alternative, UCSF would not develop at Executive Park. However, a different user would be expected to occupy Executive Park. Therefore, the significant impacts identified for the LRDP could occur, but possibly over a different time period.

At Parnassus Heights under this alternative, 141,299 gsf of space would be demolished in order to meet the space ceiling. This reduction of space would result in a reduction in faculty and staff by about 800. The employees would be expected to relocate to the Major New Site. Outpatients and visitors could increase to levels similar to the 1996 LRDP. Traffic and parking effects would be slightly reduced, compared to those of the LRDP. However, peak- hour traffic impacts would be significant at some locations, as with the LRDP.

d. Air Quality

With this alternative, reduced development of a Major New Site and reduced space at the Parnassus Heights site would reduce criteria air pollutant and toxic air contaminant emissions. Like for the 1996 LRDP, stationary source emissions, roadside carbon monoxide effects, and toxic air contaminant emissions would be less-than-significant effects for this alternative. Traffic generated by the reduced Major New Site would be about 35 percent of that projected under the LRDP, thus, vehicular ROG and NO_x, (but not PM₁₀) would be below 80 lb/day BAAQMD significance thresholds. With the 1996 LRDP, these emissions would be above the 80 lb/day threshold and would be an unavoidable significant effect. The significance of toxic air contaminant emissions from mobile sources generated under this alternative, and the cumulative effects of regional increases in toxic air contaminat emissions due to cumulative projects, would be unknown.

e. Noise

Compared to the 1996 LRDP, this alternative would develop a smaller Major New Site, and there would be fewer new daily vehicle trips generated at the Parnassus Heights site. Traffic related to LRDP activities at Parnassus Heights would not be expected to raise noise levels along local streets. Although traffic generated at the Major New Site would be about 35 percent of that projected under the LRDP, cumulative traffic noise, as well as construction and stationary source noise could be similar in magnitude to those projected for the Major New Site in the 1996 LRDP because existing plans, approved by the local jurisdictions, would allow full development of the Major New Sites independent of UCSF decisions.

f. Hazardous Materials

Reduced development at a Major New Site would reduce the volume of hazardous materials used and hazardous waste produced; however, the level of significance of the impacts of hazardous materials use and disposal would still be the same at the Major New Site as for the 1996 LRDP.

This alternative, as with the 1996 LRDP, would result in demolition of older buildings at Parnassus Heights with associated asbestos and PCB removal, and would result in continued use of hazardous materials and generation of hazardous waste. Existing biomedical research activities at Parnassus Heights and new sites would continue to generate low-level radioactive waste and chemical waste. The lack of long-term disposal sites for low-level radioactive waste would remain a significant cumulative effect.

g. Geology and Seismicity

This alternative would have reduced geo-seismic impacts from implementation of the LRDP, because the smaller size of the Major New Site would result in a smaller population being exposed to geo-seismic risks. Life safety hazards would be commensurate with the population concentration at the Major New Site. As with the LRDP, seismically inadequate buildings at Parnassus Heights would be demolished. All construction under this alternative would be subject to the requirements of the 1995 University Policy on Seismic Safety, requiring compliance with the more stringent of the state building code or the local building code. Implementation of these measures would reduce the geo-seismic impacts of this alternative to a less than significant level.

h. Hydrology and Water Quality

This alternative would have reduced hydrology and water quality impacts from the LRDP due to a reduction in UCSF uses. For example, the soil erosion and resulting sedimentation of San Francisco Bay would still be a significant impact regardless of the construction site size, but would add less sedimentation than the 1996 LRDP. Over the long term, buildout of any of the Major New Sites would result in similar effects as those analyzed for the LRDP.

i. Vegetation and Wildlife

This alternative would develop a Major New Site about 65 percent smaller than the Major New Site under the LRDP. The smaller size of the Major New Site would allow UCSF to locate development to avoid significant impacts to sensitive wildlife species at the Brisbane Baylands site. Significant impacts to sensitive wildlife species and sensitive habitat at the Harbor Bay site could occur as with the LRDP. With the 1996 LRDP or this alternative, implementation of mitigation measures would reduce these impacts to a less-than-significant level.

j. Public Services

The Reduced Project Alternative would reduce public service impacts, although these impacts would be less than significant at all Major New Sites under the 1996 LRDP.

This alternative would reduce UCSF space at Parnassus Heights by 134,094 gsf to meet the space ceiling of 3.55 million gsf. As a result, public service demands at Parnassus Heights would also decrease from current levels. As with the LRDP, public service impacts at Parnassus Heights under this alternative would not be significant.

k. Utilities and Infrastructure

Under this alternative, the utility demand generated by a Major New Site at Brisbane Baylands, Harbor Bay or Mission Bay would be about 35 percent of that with the Major New Site proposed under the LRDP. This would be a less than significant effect. Utility impacts at Parnassus Heights under this alternative would be reduced further than under the LRDP due to the reduction of built space and would also be less than significant.

l. Visual Quality

The Reduced Project Alternative would result in a smaller visual presence at each of the Major New Sites, with somewhat less potential for interruption of views at Harbor Bay, or Brisbane Baylands, and reduced potential for casting new shadows at Mission Bay. However, the impacts at these sites would continue to be less than significant, as with the 1996 LRDP. Under the Reduced Project Alternative, UCSF space at Parnassus Heights would be reduced to meet the space ceiling. This would contribute to more changes in short-range views and probably more open space at Parnassus Heights than would occur with the 1996 LRDP. This would be a beneficial visual impact, but no significant changes in the visual character of Parnassus Heights would be created by the Reduced Project Alternative.

m. Cultural Resources

As with the Major New Site under the 1996 LRDP, there could be a potential for disturbance of cultural resources under this alternative, although this potential would be reduced because of the smaller size of the Major New Site. Those effects could be avoided with measures identified for the 1996 LRDP.

n. Population, Employment, and Housing

The 1996 LRDP would not generate significant population, employment, or housing impacts. Under the Reduced Project Alternative, UCSF uses at Parnassus Heights would be reduced 134,094 to meet the space ceiling, in contrast to the LRDP reduction of 69,000 gsf. This would reduce UCSF staff at the Parnassus Heights site by about 800, with reduction by about 425 employees projected with the 1996 LRDP and 350 employees from additional space reductions. These employees would be expected to relocate to the Major New Site. UCSF would pursue the same housing projects and seek to achieve the same housing goal of providing housing for up to 25 percent of enrolled students.

This alternative would reduce demand for housing because of the reduced size of the Major New Site. Thus, this alternative would have a lower housing demand impact than the 1996 LRDP. This would be a less-than-significant impact for this alternative as it would be under the LRDP. Under this alternative, UCSF would still pursue housing goals to house about 25 percent of student needs in UCSF-controlled facilities.

3. CONCLUSION

The Reduced Project Alternative would decrease development at the Major New Site by 65 percent and would meet the space ceiling at the Parnassus Heights site. As such, direct impacts relative to the 1996 LRDP at these locations would be generally less than for the 1996 LRDP, depending on the nature of the impact as discussed above.

The Reduced Project Alternative, by implementing elements of the LRDP at Parnassus Heights, and by partial development of a Major New Site, could satisfy UCSF goals in the short term, but would not meet UCSF's goals to provide 3.43 million gsf over the LRDP planning period.

UCSF would comply with the space ceiling at Parnassus Heights under this alternative. However, this would not result in any significant environmental benefit at Parnassus Heights because the analysis of the space ceiling overage for the 1996 LRDP indicates that no significant environmental impacts result from the space overage.

E. TWO-SATELLITE ALTERNATIVE

1. DESCRIPTION

As part of the planning for the 1996 LRDP, UCSF considered a number of conceptual approaches to meeting its future space needs. As a result of applying academic and other criteria to those conceptual approaches, UCSF focused on a Major New Site as the preferred approach to meet its long-term needs. However, during the LRDP planning process, UCSF also considered meeting its space needs at two smaller satellite sites instead of at one large site. A number of sites were considered as potential combinations. Those included the Major New Site candidates — Brisbane Baylands/Executive Park, Harbor Bay and Mission Bay — and the Letterman Army Medical Center at the Presidio in San Francisco, as well as sites in the San Francisco Mission District and Daly City. For illustrative purposes, this Two-Satellite Alternative analyzes UCSF development at the Presidio and Mission Bay sites.

The development profile for the Two-Satellite Alternative would be about 985,000 gsf at the Presidio, and 1,665,000 gsf at Mission Bay, equivalent to development of 2.65 million gsf at one Major New Site under the 1996 LRDP. The development profiles for this alternative are essentially the same as those for the Major New Site at Brisbane Baylands (1,725,000 gsf) and Executive Park (925,000 gsf). However, the development would occur at more widely separated sites. The Presidio and Mission Bay are about five miles apart.

This alternative assumes, as does the 1996 LRDP, that UCSF use at Mission Bay would be part of contemplated overall development of Mission Bay as a mixed-use area. As discussed in Chapter 2, Project Description, Catellus Development Corporation has withdrawn from the Mission Bay Development Agreement; however, the *Mission Bay Plan* and zoning remain in place. Chapter 2 also outlines why use of the *Mission Bay FEIR* analysis, as well as the assumptions of the transportation analysis of a Major New Site at Mission Bay in this EIR, continue to be appropriate. This would apply also to locating the smaller satellite program at Mission Bay.

At the Presidio, under this alternative, UCSF would have about 985,000 gsf of space at the Letterman Medical Center complex. The Letterman Medical Center complex encompasses about 60 acres in the easterly part of the 1,444-acre Presidio, the former US Army base, now part of the Golden Gate National Recreation Area, under the jurisdiction of the National Park Service. The complex presently contains about 800,000 gsf of space considered to be in medical purposes. This alternative assumes UCSF would use both the Letterman Army Institute of Research building and the Letterman Hospital building with seismic upgrades and renovation, as well as use and redevelopment of other structures in the Letterman zone. The historic houses and power plant would be renovated and used; other small structures would be demolished and rebuilt. This alternative assumes that other UCSF sites, including Parnassus Heights, would develop as described in the LRDP.

Alternative A analyzed in the *General Management Plan Amended Final Environmental Impact Statement, Presidio of San Francisco*, July 1994 (*Presidio EIS*), assumed the development of about 800,000 to 850,000 gsf of medical/research space at the Letterman Medical Center by 2010, with about 1,300 to 1,400 employees. That use would be similar in size to a 985,000 gsf UCSF satellite; UCSF population (including visitors), however, would be assumed to be about 3,600. The environmental issues discussed below summarize the *Presidio EIS* to describe potential effects of a UCSF satellite at the Letterman site, taking into account the higher UCSF population.

2. ENVIRONMENTAL ISSUES

a. Introduction

The impact analysis for the Major New Site at Brisbane Baylands/Executive Park approximates the impacts that would be anticipated to result from UCSF development at Mission Bay and the Presidio under the Two-Satellite Alternative. There would, however, be differences due to the greater distance between the two satellite sites as well as their different characteristics.

Potential significant effects related to UCSF development of a Major New Site at Brisbane Baylands/Executive Park or Harbor Bay would not occur under this alternative. Less UCSF development would occur at Mission Bay than under the LRDP. However, future development by project sponsors other than UCSF at each of those sites could occur with land uses similar

to the Major New Site. Therefore, in the long term, this alternative would not necessarily avoid the site specific or cumulative environmental effects at those sites identified in this EIR.

The effects of this alternative at the Parnassus Heights, San Francisco General Hospital, UCSF/Mount Zion and Laurel Heights sites would be the same as the effects of implementation of the LRDP. These and other campus sites are not discussed further.

b. Land Use

A UCSF satellite at the Presidio would have generally the same land use impacts as described in the *Presidio EIS* for Alternative A, which analyzes a medical/research use at the Letterman site. The EIS does not identify those impacts as significant. UCSF use would continue the past pattern of medical and research land use in that section of the Presidio. Development of a UCSF satellite site at the Presidio would be consistent with the *General Management Plan for the Presidio*.

Although a satellite site at Mission Bay would be smaller in size than the Major New Site at Mission Bay under the LRDP, the impacts on land use and planning would be similar to those identified in Chapter 12. A satellite site at Mission Bay would not generate any greater adverse impacts than would the Major New Site at Mission Bay under the LRDP. Medical research campus use would be consistent with uses envisioned in the adopted *Mission Bay Plan*.

c. Traffic/Circulation/Parking

The *Presidio EIS* analyzed alternatives that would generate 59,000 to about 63,000 total weekday trips, and found that those increases would affect roadways in the vicinity of the Presidio. While Presidio-related traffic in 2010 would affect the operation of certain intersections near the Presidio, the EIS identified feasible improvements, such as signalization or lane reconfigurations, that could be implemented to attain adequate traffic conditions. As the total daily traffic at the Presidio in 2010 with a UCSF satellite would be expected to fall within the range of the EIS alternatives, development of a satellite use would not generate local transportation effects that could not be mitigated. The *Presidio EIS* identifies minor contributions by Presidio traffic to cumulative effects on regional traffic as an unavoidable impact.

The Two-Satellite Alternative would generate somewhat higher levels of total daily external trips, because of inter-campus travel between the two sites, than would a single Major New Site. However, because most of these inter-site trips would be expected to occur outside the peak hour, morning and afternoon peak-hour traffic conditions on the nearby roadways would primarily be affected by employee commute trips.

At Mission Bay, this alternative would reduce the magnitude of UCSF-related traffic by about 35 percent compared to the Major New Site scenario. This reduction would not change

impacts on the affected major roadways, I-80 (Bay Bridge), I-280, and US 101 which are expected to operate at LOS E or F under cumulative conditions in the year 2010. This alternative would reduce the LRDP's contribution to cumulative traffic. Future build-out of Mission Bay that could occur under the city's adopted *Mission Bay Plan* would have effects similar to those covered in Chapter 12, Major New Site.

d. Air Quality

The *Presidio EIS* identified the air quality effects of Alternative A, which would include reuse of the Letterman Medical Center. The *EIS* found that, as a whole, Presidio activities would exceed the BAAQMD threshold of 80 lb/day for criteria air pollutants. This would be an unavoidable significant impact, as it would be for the LRDP Major New Site Scenario. Roadside carbon monoxide (CO) modeled in the *Presidio EIS* for Alternative A in the year 2010 did not identify any future violations of the one-hour or eight-hour roadside CO standards. This would be similar to CO effects of development of a Major New Site under the LRDP. The significance of toxic air contaminant emissions from mobile sources generated under this alternative and the cumulative effects of regional increases in toxic air contaminant emissions due to cumulative projects would be unknown.

e. Noise

The *Presidio EIS* did not identify significant noise effects of implementation of Alternative A, concluding that noise levels in the Presidio would be minimally higher than at present. Construction noise would be an intermittent source of increased noise that the *EIS* considers could be mitigated to acceptable levels. Potential impacts of development of a satellite site at Mission Bay would also be expected to be similar to effects of a Major New Site, including limited noise effects.

f. Hazardous Materials

Use of hazardous materials and consequently, the magnitude of impacts at any of the Major New Sites would be expected to be similar at the two satellite sites, with somewhat more transportation of hazardous materials with two sites than at one Major New Site. Potential significant effects of the 1996 LRDP from use of hazardous materials would occur with this alternative. These would be avoided by implementation of mitigation measures identified for the Major New Site. Cumulative, unavoidable effects related to additional load on low-level radioactive waste disposal facilities would occur with this alternative as with the 1996 LRDP.

Development of a satellite site at the Presidio could involve exposure of workers to hazardous materials during demolition and replacement of existing Letterman structures. The *Presidio EIS* identifies measures that would be the responsibility of the US Army or National Park Service to remediate existing contamination at sites or buildings at the Presidio prior to re-use by another party. That remediation would be implemented under applicable federal and state laws and regulations.

g. Geology and Seismicity

This alternative would cause essentially the same geo-seismic impacts as a Major New Site Development Scenario with the proposed 1996 LRDP. Some variations could occur because of the reduced size of the site at Mission Bay and with re-use of facilities at the Presidio. Letterman Hospital would require substantial seismic upgrade. The Letterman Army Institute of Research generally meets current seismic codes. The two satellite sites are subject to similar geo-seismic hazards from earthquakes, static ground failure and construction-related erosion, as described in the 1996 LRDP Major New Site Development Scenario. Life safety hazards would be commensurate with the population concentration at each satellite site. All construction with this alternative would be subject to the requirements of the 1995 University Policy on Seismic Safety, ensuring use of the most stringent of the state building codes or local building codes, and would avoid significant adverse effects. Compared to the Two-Satellite Alternative, the LRDP Major New Site Development Scenario would have all new construction that would meet the most current seismic design codes.

h. Hydrology and Water Quality

The *Presidio EIS* did not identify significant adverse effects on hydrology and water quality from re-use of the Letterman complex. A UCSF satellite site at Presidio would therefore not be expected to have adverse impacts at the Letterman site.

UCSF development of the satellite site at Mission Bay would be smaller than the Major New Site at Mission Bay in the LRDP; potentially significant hydrology and subsurface water quality effects would be mitigated as identified for the Major New Site at Mission Bay.

i. Vegetation and Wildlife

The *Presidio EIS* identified no site-specific environmental impacts on vegetation and wildlife, including sensitive habitats, or listed species from re-use of the Letterman complex.

As with the proposed Major New Site at Mission Bay in the 1996 LRDP, a satellite site at Mission Bay would not be expected to have significant effects on wildlife or vegetation.

j. Public Services

A UCSF site at the Presidio would be expected to have similar effects on most public services as would any other Major New Site in San Francisco. The *Presidio EIS* does identify the National Park Service (NPS) as the provider of police and fire services at the Presidio, with mutual aid agreements with San Francisco. UCSF police services may not be required on a leased federal site or UCSF could contract with the NPS to provide police services. The EIS does not identify significant adverse effects on provision of such services to the Letterman Complex at the Presidio.

As with development of the proposed Major New Site at Mission Bay in the LRDP, a satellite site at Mission Bay would not be expected to have significant effects on public services.

k. Utilities and Infrastructure

A UCSF site at the Presidio could be served by Presidio water supplies (wells), or by the San Francisco Water Department system. The Presidio would also provide a wastewater collection network for transport of wastewater for treatment by the San Francisco Clean Water System. The *Presidio EIS* does not identify significant adverse effects from provision of those services to implement the *General Management Plan*, nor does it identify any difficulty in providing natural gas and electricity to the Letterman complex.

As with the proposed Major New Site at Mission Bay, a satellite site at Mission Bay would not be expected to have significant effects on public utilities or infrastructure that cannot be mitigated.

l. Visual Quality

A UCSF satellite site at the Presidio would require demolition of some existing, smaller buildings at the Letterman complex. The Letterman complex includes 51 buildings. The two main buildings, Letterman Hospital and Letterman Army Institute of Research, totaling about 800,000 gsf, are 1960s structures ranging up to 60 feet in height. The Two-Satellite Alternative assumes that UCSF would occupy and renovate the main buildings. The *Presidio EIS* assumes that if new construction were needed at the Letterman complex, development would be expected to be compatible with surrounding buildings and their setting. There would be no significant adverse impacts on visual conditions at the Presidio under guidelines prepared by the National Park Service.

As with the proposed Major New Site at Mission Bay under the LRDP, a satellite site at Mission Bay would not be expected to have significant effects on visual quality.

m. Cultural Resources

The *Presidio EIS* describes the base's designation as a National Historic Landmark District in 1962. In 1993, about 662 buildings, sites, structures and objects were listed as contributing to the landmark district, including Spanish, Mexican, and American military, exploration, and settlement themes. With the *Presidio EIS* Alternative A, about 48 historic buildings would be removed, of which four, considered to be in hazardous condition, would be at the Letterman complex. This would be an unavoidable adverse effect, proposed to be partially mitigated through Historic American Buildings Survey documentation of those structures. This effect would also occur with a UCSF satellite site at Letterman as well.

The Presidio is considered to have potential for undiscovered pre-historic and historic archaeological resources. Ground disturbance for development of a satellite site at Letterman

could affect undiscovered resources. The *Presidio EIS* identifies pre-construction surveying, monitoring during construction, and protection and recordation to avoid significant adverse effects on such resources.

A UCSF satellite site at Mission Bay would have the same potential significant impact of potential disturbance to historic archaeological resources as development of a Major New Site at Mission Bay under the LRDP, and with similar mitigation measures to avoid significant effects.

n. Population, Employment, and Housing

The 1996 LRDP would not generate significant population, employment, or housing impacts.

This alternative would generate about 8,100 net new jobs at Mission Bay and the Presidio site. As with the LRDP, housing demand would be met within the planned supply of the region and subregion and would also be a less-than-significant impact.

3. CONCLUSION

This alternative would meet UCSF's need for 3.43 million gsf, but at two smaller satellites instead of one Major New Site. The two smaller new sites would be expected to create somewhat higher operational inefficiencies, and therefore higher costs, since they would be less self-contained than the Major New Site proposed in the 1996 LRDP. This alternative would generally meet all of UCSF's objectives, but it would not meet the objective of consolidation as well as would the Major New Site.

F. OTHER ALTERNATIVE SITES CONSIDERED

1. SUMMARY OF THE SITE SELECTION AND SITE SCREENING PROCESS FOR ALTERNATIVES

In the course of planning for its long-term future, UCSF studied many possible configurations for growth and many potential development sites. This section summarizes the process by which UCSF eventually settled on investigating three major locations for a single new campus site, rather than dividing UCSF growth among two large satellite sites or multiple smaller satellite locations. As the screening process developed, UCSF published a half-dozen planning documents from 1992 to the present, most notably the *Site Evaluation Criteria*, the *LRDP Site Fact Book*, the *Space Needs Assessment*, and the *Plan Options*. Other Campus Planning Office working documents related to site evaluation have also been presented to the Community Advisory Group and other community forums.

UCSF's site evaluation process is described below. No further environmental analysis of other alternative sites considered is presented in this EIR because initial evaluation of those sites demonstrated either a clear lack of feasibility or the absence of substantial environmental advantages, or both.

2. PROCESS FOR INITIAL SITE SCREENING AND DEVELOPMENT OF ALTERNATIVE APPROACHES TO DEVELOPMENT

This section reviews the process UCSF established for collecting information on sites and devising approaches to its future physical expansion under the LRDP.

Stage 1: Inventory of Potential Sites

In 1991, an inventory of 120 potential sites for UCSF development was compiled from recommendations on currently available real estate in Bay Area county locations. Some sites were brought to UCSF's attention by real estate professionals, some from owners, and some from municipalities or redevelopment agencies.

During this period, UCSF was also examining its existing sites to assess their capacity for additional development. This resulted in publication of the *Existing Conditions Report* which noted existing campus sites with some additional developable capacity. During this time, based on UCSF's initial concept for future growth, the 120 sites were categorized according to their ability to accommodate a) a new large campus site, separate from any existing campus sites; b) a new satellite site, similar to one of UCSF's mid-sized campus sites, such as Laurel Heights; or c) a cluster site, (a small site near an existing UCSF site).

Stage 2: Initial Screening to Identify Candidate Sites

All 120 potential sites were evaluated against a list of physical criteria. The initial six criteria included: 1) compatibility of future UCSF uses with surrounding land use; 2) size (capacity to accommodate 20,000 gsf for a cluster site, 120,000 gsf for a new satellite, and 1,000,000 gsf for a major new site); 3) availability and willingness of owner to sell or lease; 4) distance from Parnassus Heights and other UCSF sites; 5) freeway and major street access; and 6) public transit access. Each site was rated on a Yes/No basis and a determination made on its placement on a candidate list of sites. Most of the sites screened at this point were either much too far away from Parnassus Heights, were too small, or clearly had features which did not fit well with UCSF's needs. Some 18 candidate sites remained after this initial screening.

Stage 3: Devising Criteria and Second Screening to Identify a Short List

In 1992, the Chancellor's Planning Committee for the 21st Century (21st Century Committee) approved the total space demand figures. The task then shifted to identifying criteria by which a plan for accommodating space demand at one or more sites could be measured for its

adequacy. Criteria developed addressed academic needs, physical requirements, and other concerns, such as community concerns, financing and timing issues. Three documents (described below) containing these criteria were published by UCSF in April 1993, and made available at various community and campus meetings.

Academic Criteria, 1993

Academic criteria were among the most important criteria for site selection. A central academic criterion was to maintain the cohesion between the existing basic and clinical sciences, and provide a way for the core basic sciences programs to remain together. Because no major new clinical facilities were planned for a new site or sites, it would not be feasible to move the clinical departments from the hospitals and clinics where the clinical faculty provides services. It also was not possible to assure the entire basic sciences faculty that sufficient space could be found and developed within a time frame that would allow them to remain located together.

In light of this, UCSF determined that a critical mass would be a key factor in the success of the new site. Sufficient numbers of faculty, students and programs would have to be located at any site for the new location to be intellectually sustaining, attract other talented faculty and students and be somewhat self-supporting. A concept emerged that the new site or sites would become the home of several cross-school, interdisciplinary program groups which would be capable of providing academic linkages between the basic biomedical research units and those conducting clinical research.

Physical Criteria, 1993

Some 22 physical criteria were devised in five categories: site location and surrounding area; land availability and development potential; site features; accessibility; and environmental issues. Proximity, size (acreage), transportation and environmental considerations were most critical in narrowing the number of sites.

Non-physical Criteria, 1993

These criteria included community and political issues, financial issues, management and timing issues, public services, community receptivity, costs (both capital and operating) and site availability.

Each of the 18 remaining candidate sites was then evaluated against the academic, physical and non-physical criteria. Criteria were grouped by category and rough order of importance. Each site was rated against each criterion as being excellent, good or poor, depending on how well it met the criterion. Using a composite evaluation, the sites with the greatest number of excellent and good ratings were selected for further study. From the initial 18 sites, 11 were chosen for further study. The existing UCSF campus sites which were deemed to have additional development capacity also were included for further study. At this point UCSF

produced its first *Site Fact Book*, May 1993, which was made available to the public at various community and campus meetings.

Stage 4: Development of Plan Options

Two plan options, or growth approaches, each with two sub-sets, were organized to array programs and corresponding space requirements over existing UCSF sites and potential new sites on the short list. These included:

Plan Option A: Develop a large new site for most/all growth
Consolidate all expansion at a major new site
Lease additional space for immediate needs; identify separate major site for long-term development

Plan Option B: Continue decentralized growth by developing additional satellites:
Disperse growth primarily to two large satellites
Disperse growth to multiple small satellites

UCSF then appraised how these options or approaches would advance UCSF's academic mission. The effect of these options on academic criteria were discussed at length with the 21st Century Committee.

Plan Option A: Develop a Large New Site for Most/All Growth

This plan option assumed that UCSF would make a commitment to develop a site which would serve its needs for the long term, defined as over 50 years. The site would consist of a large parcel, with the potential for development up to the 2.65 million gross square feet currently projected in the LRDP. Only a limited number of candidate sites could accommodate this option. At some of these sites, long-term development beyond 2.65 million gsf was seen to be problematic.

The major appeal of this option was the ability to accommodate UCSF's space needs into the indefinite future. Development could occur in phases, and because all construction would be new, it could be built to UCSF's specifications and cost less than remodeling existing buildings. It would have the additional advantage of allowing UCSF to develop based on program linkages and cohesiveness; some of UCSF's academic programs would offer strong possibilities for a core of activity at the new site. It also could be attractive for fund-raising. Over time, UCSF activities dispersed at various locations could be consolidated at the new site, thereby reducing inefficiencies and duplication of services.

However, there were difficulties with this option. Construction at any of the possible sites could not begin immediately, and not for quite some time in some cases, because of remediation soil contamination required at Mission Bay and Brisbane Baylands/Executive Park, and due to infrastructure development and fundraising requirements. Programs initially housed at a new site would be isolated from the rest of UCSF's activities for a period of time.

A variation of this plan involved UCSF leasing one or two small satellites to relieve urgent pent-up demand for initial space while acquisition and development of the Major New Site was being pursued. However, acquiring interim facilities, even by lease, would divert energy and money from the ultimate goal of developing the Major New Site.

Plan Option B: Adding New Satellites

This option offered better possibilities for accommodating growth in the short term, and allowed for development in phases that were more acceptable financially to UCSF. However, UCSF expansion by adding satellites would further disperse UCSF's activities and compound some of the problems inherent in maintaining multiple sites. Academic programs would be isolated from the Parnassus Heights site. Travel to and from various sites would increase. Some support services would be duplicated. Operating costs would increase.

Stage 5: Sites Evaluated Against Options

Five sites had the potential to develop a major new campus site of a minimum of 2.65 million gsf:

1. Brisbane Baylands (Brisbane, San Mateo County)
2. Harbor Bay Business Park (Alameda County)
3. Hunters Point Naval Shipyard (San Francisco)
4. Mission Bay (San Francisco)
5. Mission District (northeast industrial area of San Francisco)

Ten sites were seen as having the potential to house up to 2 million gsf for a large satellite:

The five sites above, plus:

6. Peninsula Gateway Project (Daly City)
7. Presidio-Letterman Army Medical Center (San Francisco)
South San Francisco/Brisbane (three possible sites)
8. Sierra Point, Brisbane or
9. The Gateway, South San Francisco or
10. Shearwater, South San Francisco

Some 14 sites had been identified as the best locations for small satellites (between 300,000 to 900,000 gsf each):

The ten above, plus:

11. Executive Park (San Francisco)
12. Presidio-Letterman Hospital or
13. Presidio-Letterman Army Institute of Research (two buildings within LAMC, above)
14. Ralph K. Davies Medical Center (San Francisco)

An additional site, involving expansion of the UCSF presence was also examined:

15. San Francisco General Hospital (San Francisco)

At this time, UCSF conducted extensive community meetings in each area where a possible UCSF site was being contemplated: South San Francisco, Brisbane, San Francisco, and Alameda. Campus "town hall" meetings also were conducted at Parnassus Heights, SFGH, UCSF/Mount Zion and the VAMC. Presentations on all sites were made to the Community Advisory Group, the University Advisory Group and several UCSF faculty entities. UCSF also went before the San Francisco Planning Commission to give a general summary of UCSF's LRDP activities.

Stage 6: Investigation of Large Satellites, Paired with The Presidio-Letterman Army Medical Center

Although UCSF concluded that it would be better to develop a Major New Site, the immediate need to provide interim space was a serious concern. Information available at that time indicated that the Presidio-Letterman Army Medical Center site could facilitate UCSF expansion in the near future. However, because the Presidio could not meet all of UCSF's projected space needs, UCSF development in the Presidio would likely result in adoption of the two-satellite approach, rather than the single major site approach, with the Presidio-Letterman being one of the two satellites. UCSF explored the concept of placing most of the basic sciences faculty at the Presidio-Letterman, to take advantage of the existing Letterman Army Institute of Research (LAIR) and the renovation potential of Letterman Hospital for a research facility.

Based on the potential availability of the Presidio for UCSF uses, and the attractiveness of that site, UCSF examined the large satellite concept once again, pairing each site with the Presidio-Letterman. The following pairings were then examined:

The Presidio-SFGH
The Presidio-Daly City
The Presidio-Executive Park
The Presidio-Mission Bay

During 1992-1994, planning was underway to convert the Presidio from an Army base to a new National Park. As part of that process, the National Park Service (NPS) drafted a *General Master Plan Amendment* (GPMA) and accompanying *Environmental Impact Statement*. The GPMA addressed specific plans and guidelines for development of each of 12 planning zones in the Presidio, one of which was the former Letterman Army Medical Center (LAMC). LAMC consisted of the Letterman Hospital, the Letterman Army Institute of Research, and some 30 other small buildings, including the hospital and four residences.

UCSF explored the possibility of developing a satellite site in the LAMC zone. Its location at the entrance to the park, near Lombard, and its proximity to Highway 1 made access to the site relatively easy from the north and from the immediate area, however freeway access from other

areas is far less direct. Parnassus Heights, Laurel Heights, UCSF/Mount Zion and the Veterans Affairs Medical Center are all quite proximate to the site. Public transportation was only fair, however.

The site had sufficient capacity for building development and parking potential to warrant further investigations, which UCSF conducted. Both Letterman Hospital and the LAIR facility were studied intensively, and the surrounding small, obsolete buildings were examined. UCSF sent an early letter of interest, and then a formal Letter of Interest to the National Park Service. Faculty interest was high and UCSF met more than ten times with community organizations near the Presidio to ascertain their concerns.

Conclusion

UCSF and NPS entered negotiations concerning a possible lease arrangement of certain facilities in LAMC, but the parties were unable to reach agreement, and UCSF ceased its exploration of the Presidio as a satellite site.

Before UCSF abandoned its efforts to lease the LAMC portion of the Presidio, it had made the following evaluations:

Daly City (Peninsula Gateway Project)

This potential satellite offered three parcels totaling about 15 acres with a development potential of 615,000 to 1,200,000 million gsf on a long, narrow strip of land owned principally by the Daly City Redevelopment Agency. It is adjacent to the BART station. Proximity, via I-280 and Junipero Serra, was acceptable; public transit was excellent. However, the site configuration was awkward, and to provide the floor area that UCSF needed building heights of between five and ten stories would be required, making development very expensive. Because research laboratories face certain code restrictions at those heights, UCSF prefers to not build at the scale required in Daly City. Finally, UCSF had some concerns regarding compatibility with adjacent land uses.

When paired with the Presidio-Letterman site, the Daly City site became more desirable because research facilities could be located at the Presidio and administration and administrative support at Daly City. This reduced the scale of the buildings at Daly City and the concerns regarding use and compatibility. However, some of the value of the site at Daly City also was reduced under this scenario because of its distance from existing UCSF facilities.

San Francisco General Hospital (SFGH)

During the time UCSF was investigating the Presidio, SFGH began a review of its 1987 *Institutional Master Plan*. SFGH examined the potential to add sufficient floor area at SFGH for UCSF to expand its presence there, either with extensive renovation of existing buildings or replacement of obsolete structures with new ones.

A pairing of SFGH with the Presidio-Letterman site had the advantage of being able to locate clinical-related research where there was already a robust academic presence, thus making it possible to develop a "critical mass" quickly. However, the site had drawbacks as well. As with the Presidio-Letterman, UCSF would not have owned the site, as it belongs to the City and County of San Francisco. Finding funds to refurbish the historic brick buildings or replacing them with contemporary space also posed problems because UCSF and SFGH are public institutions and thus not eligible for historic improvement tax credits.

Executive Park

About 71 acres were identified as potentially developable at Executive Park. When Executive Park was paired with the Presidio-Letterman, Executive Park's facilities could have contained office and support functions. However, clinical research uses at Executive Park would have been more difficult, as no UCSF hospital facility was in the vicinity.

Mission Bay

Some 15 to 50 acres at Mission Bay were considered to be available to UCSF. Mission Bay was considered the best of the three major new site locations to pair with the Presidio under the two-satellite alternative due to its proximity to existing UCSF sites. The Mission Bay/Presidio combination would enable reuse of some existing medical facilities at the Presidio, and provide land for new construction at Mission Bay.

Stage 7: Screening Plan Options to Identify Plan Alternatives

Once the negotiations for UCSF use of the Presidio-Letterman ended as a result of economic issues, the faculty and senior campus leadership decided to pursue a single major new campus site, rather than two large satellites or more small sites. After additional evaluations of the five locations which could accommodate the major new site, UCSF elected to focus solely on Brisbane Baylands/Executive Park, Harbor Bay, and Mission Bay.

The process by which UCSF screened out the other sites involved reappraising each against, first, the academic criteria, then the physical and non-physical. This screening included more detailed review of each site, including physical information on site capacity, availability of infrastructure, environmental issues and community concerns. A summary of those findings is offered by site below.

3. FINAL SITE SCREENING AND SELECTION OF LRDP SITES

The following sites were studied as potential major new campus sites and eliminated from further consideration:

Hunters Point Naval Station

This former naval base contained 520 total acres. Parcel B (formerly Parcel 2 on San Francisco maps) offered over 60 acres for UCSF development, which could provide up to 1 million gsf of floor area plus parking. Dramatic views of the San Francisco Bay made the site very attractive. While the site was located some distance from Parnassus Heights and was not well served by public transit, it was not substantially farther from Parnassus Heights than some other sites.

However, several issues led UCSF to eliminate the site from further consideration, including: the findings by the San Francisco Department of City Planning that the soil and groundwater contamination problems would likely require more than 10 years to remediate. A new seismic fault, which runs through the middle of the site, was discovered. Other uses expected for the site, including its continued use for ship repair, would have been incompatible with the development of a large research-oriented campus. Finally, the costs associated with acquisition, site preparation and development were expected to be high.

The Northeast Mission District

UCSF also evaluated the Mission area, in combination with expanded use of San Francisco General Hospital (see below). About 42 total acres in 7 zones of identified development sites on 40 city blocks offered a theoretical campus potential of between 3 and 5 million gsf. The proximity of the area to existing UCSF sites was excellent and public transportation was very good. Availability of housing and services was good.

However, this potential site posed serious difficulties related to the need to acquire adjacent parcels of sufficient size to permit a coherent plan of expansion. Ownership is scattered among private and public entities; rights-of-way for certain uses would have had to be negotiated. Another concern was related to the need to close off public streets in order to have a coherent, separate campus environment. Extensive soil and groundwater contamination was suspected because the site has been industrial for many decades, raising the costs of site preparation and development. Faculty also had concerns about noise from the Central Expressway, air pollution from surrounding sources and a perceived lack of security in the northeast zone of the area.

SFGH - As a Major Site

Based on the earlier investigation, UCSF knew SFGH's potential as a large satellite site, with a theoretical potential for about 1 million gsf of new development at the site, plus considerable below-ground parking. However, UCSF concluded that the combination of increased urban density, insufficient through-way traffic, and the very high costs of rebuilding and providing on-site underground parking made these plans prohibitively expensive. A smaller UCSF program at SFGH would provide the existing SFGH faculty (and the growth of their programs) some amenities and new research and support, as described in the LRDP.

G. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires that an EIR identify the environmentally superior alternative. This EIR evaluates two No-Project Alternatives (the No Development Alternative and the Dispersed Locations Alternative); the Reduced Project Alternative; and the Two-Satellite Alternative. Of the four alternatives analyzed, on the basis of avoidance of significant environmental effects, the Reduced Project Alternative would be the environmentally superior alternative.

At the Parnassus Heights site, the Reduced Project Alternative would meet The Regents' space ceiling policy by reducing space by 141,299 gsf. While overall land use character at that site would not change and this reduction would not eliminate any significant impacts, this would be the only alternative fully responsive to The Regents' space ceiling policy.

At the Major New Site, the Reduced Project Alternative, with 35 percent of the development proposed for the Major New Site in the 1996 LRDP, would allow UCSF to avoid significant wildlife habitat effects at Brisbane Baylands or at Harbor Bay.

Air quality effects of the Reduced Project Alternative would not exceed the 80 lb/day BAAQMD thresholds for ROG and NO_x. The PM₁₀ threshold would still be expected to be exceeded. Development of the Major New Site in the 1996 LRDP would generate air quality effects that would exceed those thresholds.

For other topics and impacts, the potential effects and mitigation measures for the Reduced Project Alternative would be similar to those for the 1996 LRDP.

Report Preparation

Chapter 16: Report Preparation

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December 15, 1995

NOTICE OF PREPARATION--DRAFT ENVIRONMENTAL IMPACT REPORT†

Lead Agency: The Regents of the University of California
University of California, San Francisco
Office of the Vice Chancellor - University Advancement and Planning

Contact: Michelle Schaefer, Environmental Coordinator
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In compliance with the State and University of California guidelines for implementation of the California Environmental Quality Act, The Regents will be the Lead Agency and the University of California, San Francisco will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project.

The project description, location, and potential environmental effects are contained in the attached materials. An EIR is clearly required for the project and no Initial Study will be prepared.

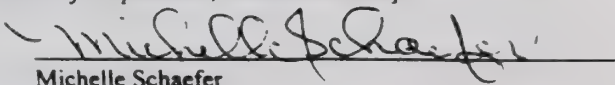
Due to the time limits mandated by State law, your response must be sent no later than 30 days after receipt of this Notice. Please send your response to Ms. Michelle Schaefer at the address shown above.

Project Title: 1996 Long Range Development Plan,
University of California, San Francisco

Location: City and County of San Francisco; San Mateo County; and Alameda County

Project Description: Each campus in the University of California system is required to periodically examine its academic goals and to devise physical plans to support them in the form of a Long Range Development Plan (LRDP), which sets forth concepts, principles and plans intended to guide future physical growth and change of the campus. The University of California, San Francisco (UCSF) proposes the 1996 LRDP to guide future physical development of UCSF through the academic year 2011/12.

[SEE ATTACHMENT 1 - Notice of Preparation, 1996 LRDP EIR]


Michelle Schaefer
Environmental Coordinator
(415) 476-9627

Notice of Preparation

ATTACHMENT 1 - Notice of Preparation, 1996 LRDP EIR

A. BACKGROUND

The University of California, San Francisco (UCSF) proposes the 1996 Long Range Development Plan (LRDP) to guide future physical development of UCSF through the academic year 2011/12. An environmental impact report (EIR) will be prepared on the 1996 LRDP with The Regents of the University of California (Regents) as the Lead Agency. An EIR is clearly required for the project. The University has elected not to prepare an Initial Study and to instead begin work directly on the EIR.

The EIR will analyze potential environmental impacts associated with the 1996 LRDP in all environmental impact categories described in the environmental checklist form.¹ Particular focus will be given to effects typical of urban development, including air emissions, noise, land use, risk of upset, population, housing, transportation/circulation, public/utility services, and public health.

B. PROJECT OBJECTIVES

The basic purpose of the 1996 LRDP is to guide physical development of the UCSF campus to achieve the goals set forth in the *UCSF Academic Mission Statement*,² and in the *Goals and Objectives*,³ a document jointly prepared by three committees comprised respectively of UCSF faculty, UCSF staff and community representatives. The two documents provide the programmatic basis for future physical development at UCSF and identify the major goals and objectives that UCSF seeks to achieve through the 1996 LRDP. The project objectives are based on long-term trends and goals including greater interdisciplinary study and research; major research endeavors in topics such as AIDS, drug design, molecular and cell biology, cancer, children's health, and health policy; growth in pharmacy professional and graduate student enrollments; shifts in health care provision from the inpatient to the outpatient settings; and continued work in community health care and health/scientific education.

1 Environmental impact categories to be addressed in the EIR are: Land Use, Recreation, Transportation, Circulation, Parking, Air Quality, Toxic Air Emissions, Noise, Hazardous Materials, Geology, Seismicity, Hydrology, Water Quality, Vegetation, Wildlife, Natural Resources, Public Services, Utilities, Infrastructure, Energy, Visual Quality, Climate, Cultural Resources, Population, Employment, and Housing. The EIR will also evaluate Growth Inducing Impacts, Cumulative Impacts, Unavoidable Significant Environmental Effects, and Significant Irreversible Environmental Effects.

2 University of California, San Francisco, UCSF Academic Mission Statement, April 1991.

3 University of California, San Francisco, Goals and Objectives, consolidated from the faculty's 21st Century Planning Committee, the Community Advisory Group, and the staff's University Advisory Group recommendations, November, 1994.

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C. PROJECT DESCRIPTION**1. Existing Space and Projected Space Needs**

Excluding parking uses, UCSF currently occupies approximately 5.03 million gross square feet (gsf)⁴ among its main Parnassus Heights site, 11 other campus sites, and many leaseholds in San Francisco and the northern Peninsula. Approximately 70% of this space is at the Parnassus Heights site. UCSF space is assigned to: a.) UCSF's four schools (the Schools of Dentistry, Medicine, Nursing and Pharmacy); b.) central administrative units; and c.) the Medical Center, which operates Moffitt/Long Hospitals and the Langley Porter Psychiatric Institute at Parnassus Heights, and UCSF/Mount Zion in the Western Addition neighborhood of San Francisco. UCSF also has affiliated operations at San Francisco General Hospital (SFGH) and the Veterans Affairs Medical Center (VAMC). UCSF also operates the Fresno-San Joaquin Valley Medical Education Program in the Central Valley. UCSF historically has concentrated its academic programs at the main Parnassus Heights site, while clinical and research programs are distributed among Parnassus Heights, UCSF/Mount Zion, Laurel Heights, SFGH, the VAMC and other UCSF campus sites. Figure 1 shows the locations of UCSF sites in the Bay Area.

Space planning under the LRDP is organized by major space categories, which are described below. One of the hallmarks of UCSF is the collaborative academic process where instruction activities occur in a variety of settings in addition to the classroom, including research laboratories and clinical patient care space.

- **Instruction** - activities involving the transmission or dissemination of knowledge to students, on a group or individual basis, in a variety of physical settings including classrooms, seminar rooms, teaching laboratories, and academic offices. Instruction may also take place in research laboratories or clinical settings.
- **Research** - investigations conducted in laboratories or offices. Laboratory space also includes associated research offices and research support areas, such as refrigerated storage rooms, glass washing and sterilizing areas, and tissue culture rooms. Research may also take place in clinical settings.
- **Clinical** - space for services provided to patients in hospitals or clinics, including the functions which support the provision of direct patient care such as administrative offices.

4 Gross square feet (gsf) is the total square footage of a building, including all walls, structures, mechanical spaces and the corridor system

REGIONAL LOCATION

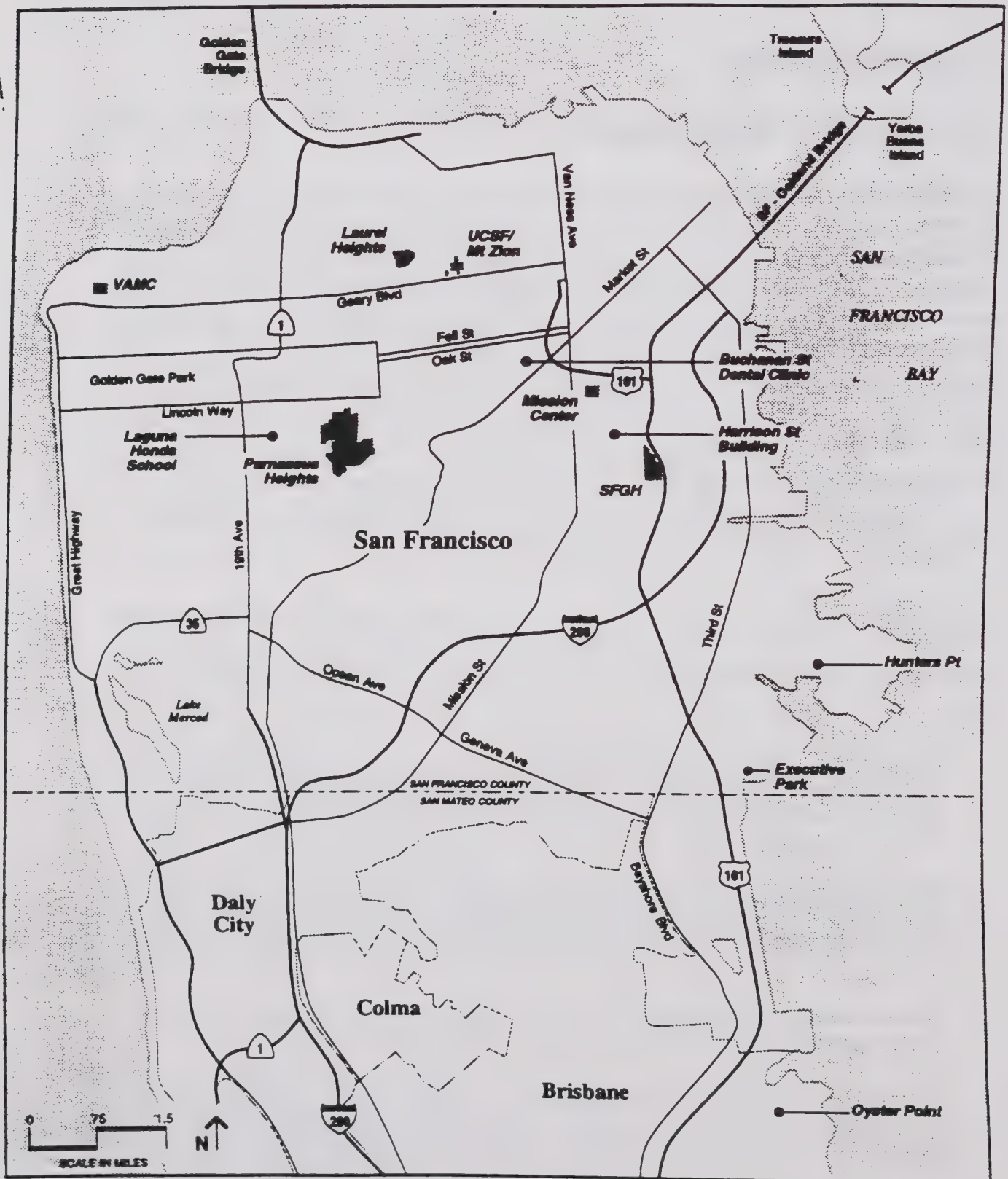


Figure 1
Existing UCSF Sites

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- **Academic Support** - activities supporting the academic enterprise, such as the library and animal care.
- **Academic and Campus Administration** - all administrative activities at the academic department level, school level or campus level, including deans' and directors' offices, and related service facilities, such as conference rooms and copying facilities, as well as non-academic support activities which typically serve the campus as a whole, such as personnel, accounting, police, budget, public affairs and planning.
- **Campus Community** - activities, amenities and spaces which provide opportunities for relaxation, enjoyment of the natural environment, recreation, fitness, child care and food service.
- **Logistics** - activities devoted to the delivery of materials, and physical plant activities, such as machine shops, service yards, utilities and storage.
- **Housing** - residential facilities for students and faculty.
- **Vacant and Alteration Space** - "contingency" space to accommodate routine departmental moves and temporary vacancies during space alterations such as laboratory upgrades and office remodeling.
- **Structured Parking** - Structured parking is included in total building gross square footage.

In preparation for the 1996 LRDP, each of the four schools and the Medical Center identified needs for academic and clinical care space for the next 10 to 15 years, including space for existing program growth, new programs, and space to relieve existing crowded conditions ("decompression" space). The space need for academic (instruction and research) and clinical care uses is approximately 1.87 million gsf. The total space need, including support functions and student/faculty housing but excluding parking, is about 3.33 million gsf, an approximately 65% increase over current space. The estimated space needs do not include parking requirements because they would vary with the types of space and modes of travel available to at the locations proposed for development.⁵

The 1996 LRDP calls for a major portion of space needs to be met through new construction; however, some need would be satisfied through the use of existing vacant or under-utilized space, release space⁶, or consolidation space. Of the total projected 3.33 million gsf space need described above, UCSF expects to meet some of this need at existing sites through the development of new space, and the full occupancy of existing under-utilized space. The remaining need along with UCSF owned and leased

⁵ Parking, and the effects of developing additional land with parking, will be evaluated in the EIR based on the characteristics of each of UCSF's individual sites and of the potential new sites.

⁶ Release space refers to existing UCSF space which is vacated and made available for reuse.

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space which would be desirable to consolidate at a central location, would be met at a new campus site. As a consequence of the proposed new construction and demolition, total projected UCSF built space would be approximately 8.2 million gsf, including a new campus site with 2.65 million gsf. The 1996 LRDP proposals for existing sites and a major new campus site are described below.

2. Proposed Improvements and Space Needs to be Met at Existing Sites

Under the 1996 LRDP, current activities at academic sites (Parnassus Heights, UCSF/Mount Zion, and UCSF affiliations at SFGH and VAMC) will be maintained, and UCSF-owned buildings at Laurel Heights, Mission Center, the Buchanan Dental Clinic, Turk Street student apartments, and Hunters Point animal care facility will be retained. LRDP activities at existing sites will include infrastructure, code and seismic upgrades and new construction to meet space need. It is anticipated that some of the space needs identified under the 1996 LRDP could be met at the Parnassus Heights site, UCSF/Mount Zion, Laurel Heights, SFGH, and Mission Center. These sites are briefly described below. No space needs are proposed to be met at the other UCSF sites or the affiliated VAMC, and so those sites are not further discussed.

- **Parnassus Heights.** The Parnassus Heights site covers about 107 acres on the northern slope of Mount Sutro at the physical center of San Francisco (see Figure 2). The 1996 LRDP proposed plan for Parnassus Heights will be to carry out necessary infrastructure, code and seismic improvements and to respond to the Regental space ceiling policy by carrying out demolition and new construction projects which will reduce the overall gsf on site.⁷ The plan will seek to minimize potential impacts resulting from population at the Parnassus Heights site. Particular attention will be given to the topics of land use; open space; and area housing stock.

⁷ The 1976 Regents' Resolution, which resulted from community protest over the 1976 LRDP, established permanent physical limits of 3.55 million gsf of building space to be built at Parnassus Heights (excluding residential uses in UCSF-owned "Avenue Houses" on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets); drew boundary limits for the site; and preserved 58 acres of land on Mount Sutro as a permanent open space reserve.

—PARNASSUS HEIGHTS

FIGURE 2



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA and HGHB, UCSF LRDP—Existing Conditions Report, September 1992.

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- **UCSF/Mount Zion Hospital and Medical Center.** UCSF and Mount Zion Health Systems integrated in 1990/91 to operate Mount Zion Hospital on a six-acre site in the northern portion of San Francisco, about two miles from Parnassus Heights (see Figure 3). The 1996 LRDP proposal for UCSF/Mount Zion includes the same array of development described in the 1992 Amendment to the 1982 LRDP adopted by The Regents in November 1992. The short-range and long-range development programs were analyzed in the *1990 Mount Zion Integration Agreement EIR*, and the *1992 Mount Zion Program Revisions and Associated Building Projects Subsequent EIR* (both EIRs logged as SCH No. 89060609). The 1996 LRDP will update the current status of UCSF/Mount Zion projects where necessary.
- **Laurel Heights Building and Annex.** The Laurel Heights facility, about two miles north of Parnassus Heights and just west of UCSF/Mount Zion is a 10.8-acre office site originally built as headquarters for the Fireman's Fund Insurance Company (see Figure 4). Approved UCSF occupancy of the Laurel Heights Building and Annex is described in the 1995 Amendment to the 1982 LRDP adopted by The Regents in September 1995 and analyzed in the *Revised Laurel Heights Plan EIR* (SCH No. 95033072). The 1996 LRDP proposal incorporates the 1995 occupancy plan to include administrative offices and office-based instruction and research programs. About seven percent of the facility will be retained for research laboratory or clinical support laboratory. The Social, Behavioral and Policy Science programs, now dispersed throughout UCSF facilities, will be consolidated and strengthened at Laurel Heights. Basic building code, life safety and infrastructure improvements will be made to the building to support these uses.
- **San Francisco General Hospital.** SFGH is the County Hospital owned and operated by the City and County of San Francisco (see Figure 5). UCSF currently occupies space and provides medical faculty at SFGH through an affiliation agreement. Planning at SFGH is guided by the 1987 Institutional Master Plan prepared and maintained by the City and County of San Francisco. The 1996 LRDP will identify a possible scenario for providing additional space for UCSF faculty and staff in conjunction with planning needs of the City. The EIR will evaluate this scenario at a general level of detail.
- **Mission Center.** The Mission Center building is located on a three-acre site in the northeast portion of San Francisco's Mission District (see Figure 6). The 1996 LRDP proposal for the Mission Center building is to continue to house administrative and academic units, and to fully occupy for its own uses, current vacant and most leased space in the building. Basic building systems and infrastructure will be improved to meet code and program requirements.

[illegible]

—LAUREL HEIGHTS

FIGURE 4



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, CA.

—SAN FRANCISCO GENERAL HOSPITAL

FIGURE 5



—UCSF/MISSION CENTER

FIGURE 6



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3. Space Needs to be Met at a New Campus Site⁸

The 1996 LRDP proposes a major new campus site on a large parcel of land with the potential for development of up to 2.65 million gsf (plus parking). This amount of space could satisfy the currently projected space need which cannot be met at existing sites, and accommodate UCSF uses currently located in UCSF owned and leased space that would be desirable to consolidate at the new site. After an extensive site search and evaluation process conducted by UCSF over the past several years, three sites are under consideration as candidates for a potential major new campus:

- **Brisbane Baylands/Executive Park** (City of Brisbane and City and County of San Francisco)
- **Harbor Bay Business Park** (City of Alameda)
- **Mission Bay Area** (City and County of San Francisco)

Figure 7 shows the regional locations of the alternative new sites.

⁸ Note: As illustrated in Attachment 3, Draft EIR Table of Contents, pages 25 - 29, the proposed organization of the EIR is to evaluate UCSF's existing sites individually by environmental topic so that readers may understand the environmental effects unique to development at that site. On the other hand, the proposed organization of the New Campus Site evaluation is to evaluate all three sites together within each environmental topic so that readers may understand the comparative analysis of the candidates sites.

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Brisbane Baylands/Executive Park

The combined Brisbane Baylands/Executive Park site is located about six miles from downtown San Francisco and five miles north of the San Francisco International Airport. The new campus site would be split between the Brisbane Baylands parcel and the Executive Park parcel (see Figure 8).

The Brisbane Baylands site under consideration is a 50+ acre portion of the 523-acre Baylands site. The largely vacant parcel is principally located in the City of Brisbane in San Mateo County. The City and County of San Francisco is located to the north, and areas of Brisbane and the City of Daly City are located to the west. U.S. 101 and the San Francisco Bay lie to the east of the parcel. The CalTrain rail line runs north/south through the parcel. The Baylands site is part of a Redevelopment Plan Area.

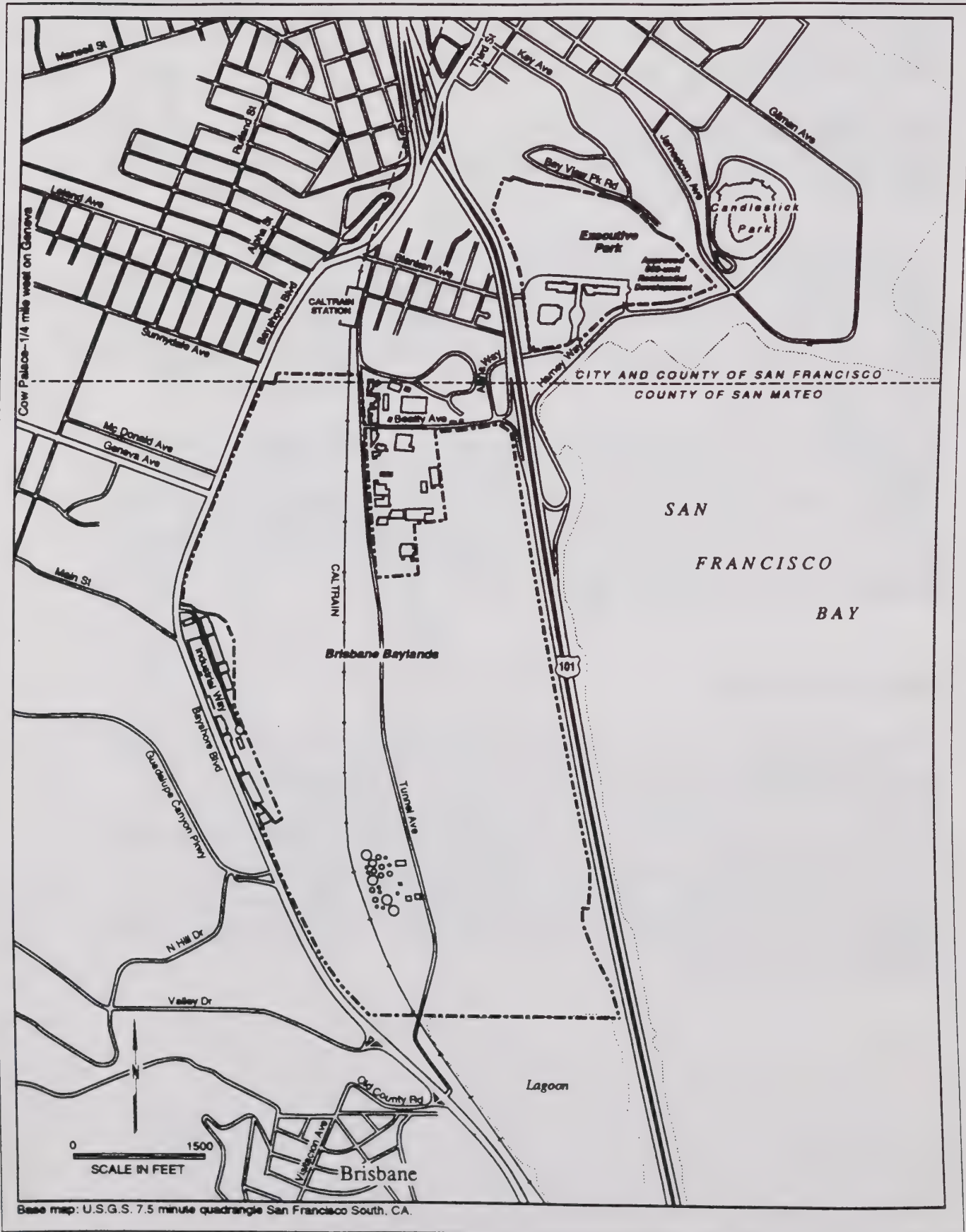
The Executive Park parcel under consideration is an approximately 16-acre portion of the 71-acre Executive Park site in the City and County of San Francisco, just north of the City of Brisbane. The Executive Park site includes a portion of Bayview Hill to the north and is bounded by U.S. 101 to the west, Harney Way and San Francisco Bay to the south, and 3-COM (Candlestick Park) Stadium to the east. Three office buildings totaling 320,000 gsf have been constructed at the site as part of a mixed use development plan approved by the City and County of San Francisco in 1986.

Harbor Bay Business Park

Harbor Bay Business Park is part of the Harbor Bay Isle mixed-use development located on the northern portion of Bay Farm Island in the City of Alameda (see Figure 9). Harbor Bay Business Park is comprised of about 320 acres, about 100 acres of which are developed with office and research-laboratory uses. UCSF is considering about 92 acres on two vacant parcels for potential development of a new campus site. The site is bounded by the City of Alameda golf course to the northeast, the Metropolitan Oakland International Airport to the southeast, and San Francisco Bay to the west and southwest. Two major residential neighborhoods, Highlands Homes and Harbor Bay Village, have been developed to the north of the site.

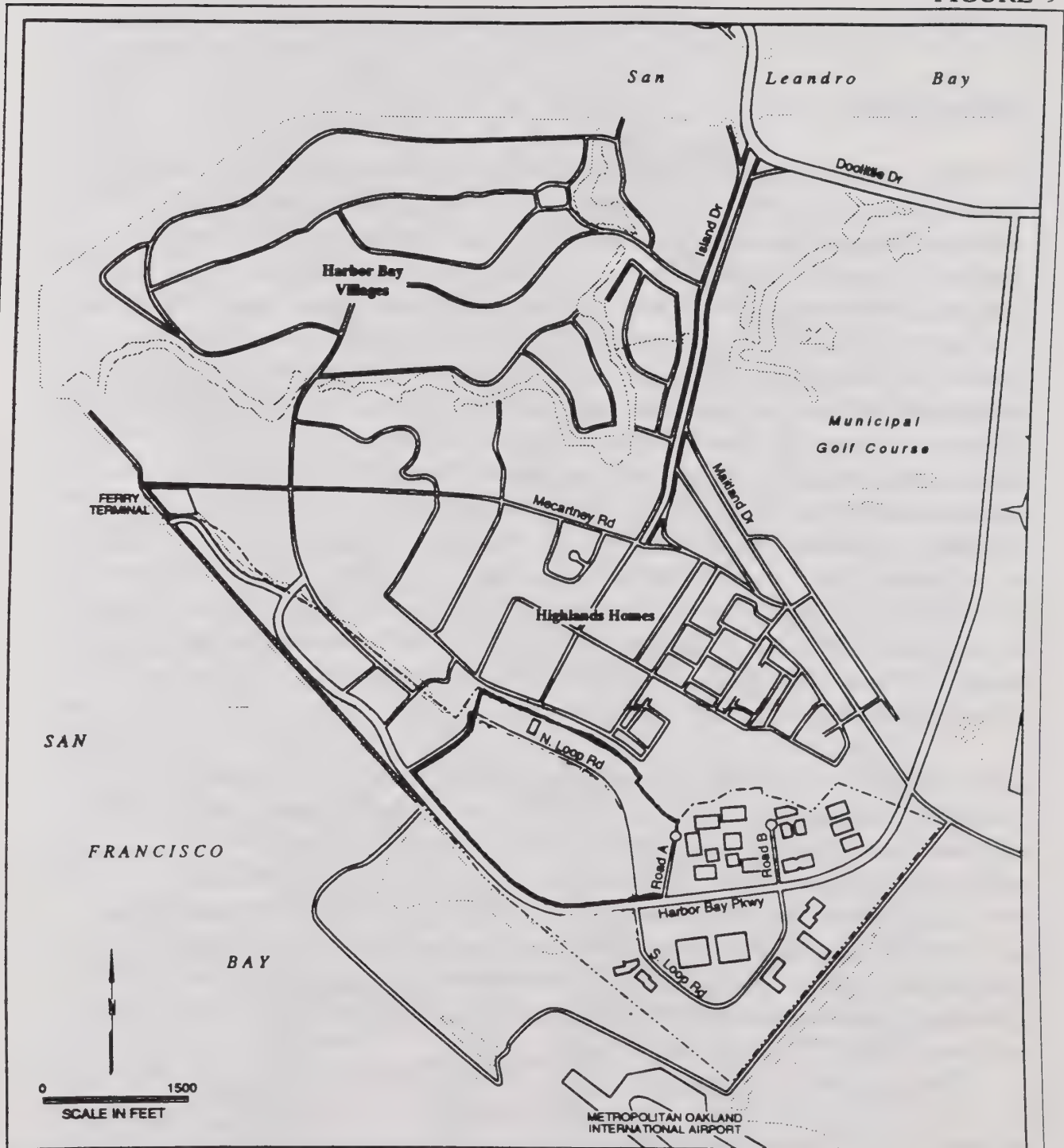
—BRISBANE BAYLANDS/EXECUTIVE PARK

FIGURE 8



—HARBOR BAY

FIGURE 9



Base map: U.S.G.S. 7.5 minute quadrangles Hunters Point, Oakland East, Oakland West and San Leandro, CA.

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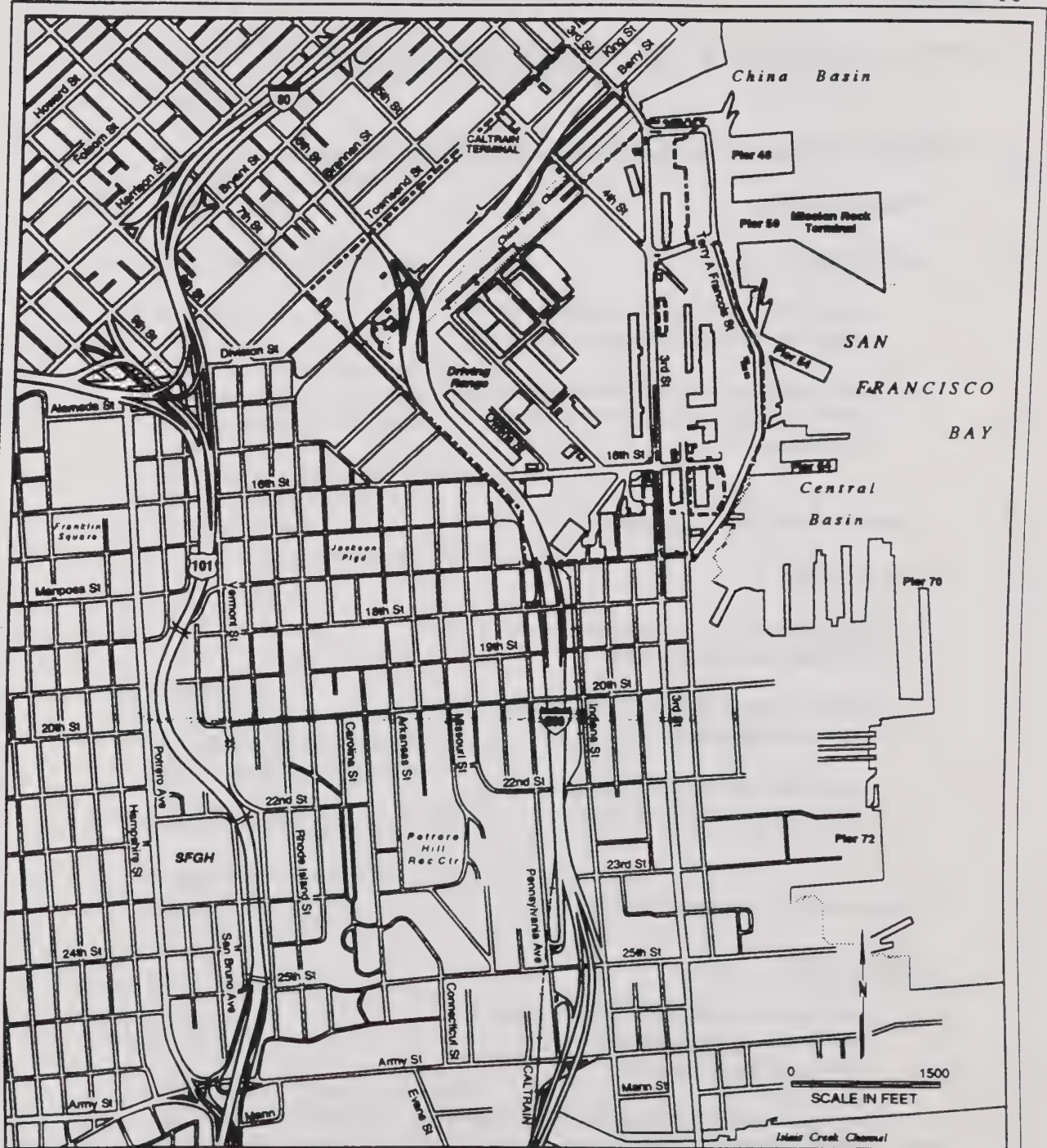
Mission Bay Area

The Mission Bay project area is in the southeast portion of San Francisco about one mile south of downtown (see Figure 10). A number of properties are under consideration for potential UCSF development within the Mission Bay area. The primary site, known as Mission Bay is a planned new community bounded by Townsend Street to the north, Seventh Street and Pennsylvania Avenue on the west, Mariposa Street on the south, and Third Street and Terry A. Francois Street (formerly China Basin Street) on the east. Mission Bay encompasses about 325 acres along the western shoreline of San Francisco Bay. Most of the surrounding area contains industrial uses including truck terminals, construction-related operations, warehouses, maritime activities, and former rail yards. Much of the area is under-used or vacant. Three sections of Mission Bay under consideration for UCSF are: the northerly portion along King Street; the westerly portion along Owens Street and Interstate 280; and the southeasterly portion along 16th Street. Other potential sites in proximity to Mission Bay include the China Basin office buildings (between 3rd and 4th Streets, north of the Channel), the Esprit retail store and cafe buildings (east of 16th Street), the Castle Metals former steel fabrication plant site (west of Third Street, south of 16th Street), the Fashion Center wholesale showroom building (at 8th and Townsend Streets, west of I-280), and portions of Pier 70 (east of Third Street, between 20th and 22nd Streets). UCSF assumes that approximately 40 acres of contiguous parcels could be assembled for development in the Mission Bay area.

Future development of Mission Bay is governed by the Mission Bay Plan, a Specific Plan within the Central Waterfront Plan of the City and County of San Francisco Master Plan. This comprehensive plan is fashioned around the concept of a new neighborhood in Mission Bay. The Plan calls for the development of 8,500 housing units, 4.8 million gsf of office/institutional space, 900,000 gsf of service/light industrial/research and development space, 750,000 gsf of retail space, a 500-room hotel and 67.9 acres of open space. The Mission Bay Plan would need to be modified to accommodate UCSF at Mission Bay, although it is assumed that UCSF's use of a portion of Mission Bay would develop part of the office/institution and service/light industrial/research and development space contemplated under the Mission Bay Plan.

—MISSION BAY: EXISTING CONDITIONS

FIGURE 10



Base map: U.S.G.S. 7.5 minute quadrangle San Francisco North, San Francisco South, CA and Mission Bay Plan.

ATTACHMENT 2 - Environmental Checklist

A. ENVIRONMENTAL EFFECTS AND REGULATORY ISSUES

1.	Plans and Policies.	Yes	Maybe	No
	Could the project:			
a.	Conflict with planning or zoning designations of agencies with jurisdiction over the project?	—	X	—
b.	Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?	—	X	—
2.	Land Use / Open Space / Recreation.	Yes	Maybe	No
	Could the project:			
a.	Disrupt or divide the physical arrangement of an established community?	—	X	—
b.	Have a substantial impact upon the existing character of the vicinity?	X	—	—
c.	Impact upon the quality or quantity of existing recreational opportunities?	—	X	—
3.	Transportation / Circulation / Parking.	Yes	Maybe	No
	Could the project:			
a.	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	X	—	—
b.	Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards to motor vehicles, bicyclists or pedestrians?	X	—	—
c.	Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	—	X	—

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	d. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		<u>X</u>	—	—
	e. Interfere with or alter waterborn traffic, rail traffic, or air traffic?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		—	<u>X</u>	—
4.	Air Quality / Toxic Air Emissions	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
	Could the project:			
	a. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		<u>X</u>	—	—
	b. Expose sensitive receptors to substantial pollutant concentrations?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		<u>X</u>	—	—
	c. Permeate its vicinity with objectionable odors?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		—	<u>X</u>	—
5.	Noise	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
	Could the project:			
	a. Increase substantially the existing ambient noise levels for adjoining areas?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		<u>X</u>	—	—
	b. Expose people to severe noise levels?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		—	<u>X</u>	—
	c. Be substantially impacted by existing noise levels?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		—	<u>X</u>	—
6.	Hazardous Materials.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
	Could the project:			
	a. Create a potential public health hazard (excluding mental health) or involve the use, production or disposal of materials which expose people or animal or plant populations in the area affected?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		<u>X</u>	—	—
	b. Interfere with emergency response plans or emergency evacuation plans?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		—	<u>X</u>	—
	c. Create a potentially substantial fire hazard?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		<u>X</u>	—	—

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d.	Involve a risk of an explosion or the release of hazardous substances in the event of an accident or upset conditions?	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
		<u>X</u>	—	—
7.	Geology / Seismicity.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
	Could the project:			
a.	Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction)?	<u>X</u>	—	—
b.	Change substantially the topography or any unique geologic or physical features of the site?	<u>X</u>	—	—
c.	Bring a population into proximity of a seismic hazard?	<u>X</u>	—	—
8.	Hydrology / Water Quality	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
	Could the project:			
a.	Substantially degrade water quality, or contaminate a public water supply?	—	<u>X</u>	—
b.	Substantially degrade or deplete groundwater resources, or interfere substantially with groundwater recharge?	—	<u>X</u>	—
c.	Cause substantial flooding, erosion or siltation?	—	<u>X</u>	—
9.	Vegetation / Wildlife / Natural Resources.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
	Could the project:			
a.	Substantially affect a rare or endangered species of animal or plant, or the habitat of the species?	—	<u>X</u>	—
b.	Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	—	<u>X</u>	—

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	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
c. Require removal of substantial numbers of mature, scenic trees?	—	<u>X</u>	—
d. Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	—	<u>X</u>	—
10. Public Services.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
Could the project:			
a. Result in a need for new or altered government services such as fire protection or police protection?	—	<u>X</u>	—
b. Substantially increase demand for schools, parks, or other public facilities of effect other government services including road maintenance?	—	<u>X</u>	—
11. Utilities / Infrastructure / Energy.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
Could the project:			
a. Breach published national, state or local standards relating to solid waste or litter control?	—	<u>X</u>	—
b. Extend a sewer trunk line with capacity to serve new development?	<u>X</u>	—	—
c. Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	<u>X</u>	—	—
d. Require major expansion of power, water, or communications facilities?	—	<u>X</u>	—
12. Visual Quality / Aesthetics / Climate.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
Could the project:			
a. Have a substantial, demonstrable negative aesthetic effect?	—	<u>X</u>	—
b. Substantially degrade or obstruct any scenic view or vista now observed from public areas?	—	<u>X</u>	—

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	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
c. Generate obtrusive light or glare substantially impacting other properties?	<u>X</u>	—	—
d. Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?	—	<u>X</u>	—
13. Cultural Resources.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
Could the project:			
a. Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community, ethnic or social group; or a paleontological site except as a part of a scientific study?	—	<u>X</u>	—
b. Conflict with established recreational, educational, religious or scientific uses of the area?	—	<u>X</u>	—
14. Population / Employment / Housing.	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
Could the Project:			
a. Induce substantial growth or concentration of population?	<u>X</u>	—	—
b. Displace a large number of people (involving either housing or employment)?	—	<u>X</u>	—
c. Create a substantial demand for additional housing, or substantially reduce the housing supply?	—	<u>X</u>	—

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B. MANDATORY FINDINGS OF SIGNIFICANCE

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history?	—	<u>X</u>	—
2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	—	<u>X</u>	—
3. Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (In light of past projects, other current projects, and probable future projects.)	<u>X</u>	—	—
4. Would the project cause substantial adverse effects on human beings, either directly or indirectly?	—	<u>X</u>	—

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Land Use

MEMORANDUM OF UNDERSTANDING

On February 17, 1987, UCSF entered into a Memorandum of Understanding (MOU) with the City and County of San Francisco regarding communication and oversight of University master planning, construction and real estate utilization. The MOU was signed by the Chancellor and the Vice Chancellor for Resource Management and Planning Services of UCSF and by the Mayor and Director of Planning of San Francisco. Because of its brevity and importance, the MOU is included in its entirety:

The following text is reprinted verbatim from the cited document.

- I. The intent of this memorandum of understanding is to foster harmonious relations between the City and County of San Francisco (hereafter City) and the University of California, San Francisco (hereafter UCSF) regarding the growth and development of UCSF facilities within the City's boundaries.
- II. Each party is chartered to operate under provisions of the State constitution which govern their cooperation with neighboring communities, and these factors are recognized by all parties.
 1. The University of California, Board of Regents, is the overseeing body of UCSF.
 2. Transfer of title to any lands of UCSF must be accomplished in accordance with existing statutes or through the Board of Regents.
 3. The City Charter spells out the duties, responsibilities, and limitations of the Mayor, Board of Supervisors, and Department of City Planning.
 4. The Director of the Department of City Planning is responsible to the City Planning Commission and he is required at all times to represent the best City planning interest.
 5. Existing direct relationships between City departments and UCSF programs located at UCSF will continue without reference to this memorandum of agreement. This specifically includes all health programs and routine operational matters.
- III. The principal concerns of this agreement are the responsibilities of the City and UCSF for oversight of land uses and the development, maintenance and use of physical facilities.
 1. The City is responsible for the reasonable development, maintenance and reuse of land in accordance with the Master Plan of the City and County, as adopted and modified from time to time by the City Planning Commission and as expressed in the City's zoning ordinance. The City requires that all major institutions submit institutional master plans to the City Planning Commission for their review.
 2. UCSF maintains a health science center and the requisite facilities to provide educational programs, research and medical services which may require expansion, contraction or modification over time. The UCSF institutional master plan is submitted to the University of California Board of Regents for review and approval. The UCSF campus agrees to continue submitting its long-range development plan to the City Planning Commission.

- IV. In an effort to improve communication between UCSF and the City regarding changes in the land use and development plans of UCSF, the parties to this memorandum agree that:
1. UCSF staff and the City Planning Commission staff will meet at least once a year to review long-range development plans for UCSF and City development and services plans. Such meetings will be convened by UCSF and the results of them reported in writing to the City Planning Commission at a regularly scheduled meeting.
 2. UCSF will advise the City in writing of all matters concerning master planning, construction and real property utilization initiated by UCSF which may have an impact on the City. The City Planning Commission will review such proposals and advise UCSF in writing as to the conformance of such development with the Master Plan of San Francisco and Planning Code Section 304.5 (Institutional Master Plans) with recommendations, if any, for amendment to the proposal.
 3. UCSF will modify its 1982 Long Range Development Plan, as required over time, and the City Planning Commission may hold at least one public hearing on all such modifications prior to preparation of written comments.
 4. UCSF shall notify the City of and the City shall attend hearings conducted by UCSF pursuant to the California Environmental Quality Act.
 5. UCSF will maintain campus advisory committees, composed of neighborhood representatives, at both its Parnassus Heights and Laurel Heights campuses and will invite the City Planning Commission, Municipal Railway and Department of Public Works to participate in those meetings. The Mayor will urge those City departments to participate on the Committees.
 6. The City Planning Commission will advise UCSF in writing of all matters coming to the Commission's attention concerning master plans, construction and real estate utilization which may have an impact on UCSF.
 7. Should the City Planning Commission and UCSF disagree on any matter which is the subject of this MOU, either party may request the participation of the Mayor and the Chancellor in attempting to resolve the dispute.
- V. This memorandum does not confer or surrender any authority beyond that already possessed by each party concerned. Further, it does not abrogate any requirement by either party to coordinate matters of master planning with the Association of Bay Area Governments (ABAG) or other appropriate agencies.
1. For the City, the Director of Planning shall be the responsible designee.
 2. For UCSF, the Vice Chancellor - Resource Management and Planning Services shall be the responsible designee.

SOUTH BAYSHORE

INTRODUCTION

The purpose of the South Bayshore Area Plan is to guide the orderly development of the South Bayshore district in a manner consistent with local and City-wide objectives. The Plan should provide guidelines whereby the public and private enterprise can work together to fulfill the social, economic and physical development objectives with maximum benefit for all.

The primary objective of the Plan is to improve the total environment of the area, including residential opportunities and amenities, community facilities, and commercial and industrial patterns.

The policies and conclusions contained herein are addressed to the district's needs, problems, and potentials, and to the conservation and enhancement of the district's positive physical features. The Plan respects existing development by proposing no major changes in land use for built-up areas. The policies and conclusions, as they

relate to existing development, are directed toward extending its useful life and making the district more functional and attractive. Proposals for the development of the South Bayshore's wealth of vacant land include major policy changes and represent a new approach to planning these areas.

Source Material

Except for the Sub-Area Plan for San Francisco Executive Park, the South Bayshore Plan is based upon the "South Bayshore Study: A Proposed Development Plan," 1969. That document should be relied upon for detailed background information, data, further rationale and considerations leading to the proposals in this Plan. The Sub-Area Plan for San Francisco Executive Park is based upon material contained in Department Case Report No. 81.197 RSEMZC, dated October 16, 1985.

The San Francisco Master Plan

TRANSPORTATION

OBJECTIVES 1 and 2

TO DEVELOP A SYSTEM FOR THE EASY MOVEMENT OF GOODS AND PEOPLE, BASED UPON PROJECTED NEEDS OF LOCAL ACTIVITIES AND THROUGH TRAFFIC, AND UPON THE TRANSPORTATION SYSTEMS OF THE CITY AND REGION.

TO IMPROVE ACCESS TO THE AREA FROM OTHER PARTS OF THE CITY, TO DEVELOP A COHERENT NETWORK OF STREETS, TO RELATE THE CIRCULATION SYSTEM MORE CLOSELY TO THE AREA IT SERVES, AND TO KEEP INTRUSIVE TRAFFIC OUT OF THE RESIDENTIAL NEIGHBORHOODS.

POLICIES AND PLAN PROPOSALS

1. The Southern-Embarcadero and James Lick Freeways are to remain unchanged except for the proposed addition of ramps to the latter at Harney Way.
2. Third Street and Army Street are proposed to remain arterials.
3. Geneva Avenue, an arterial, should be extended east, connecting with the Harney-Lick interchange.
4. Bayshore Boulevard, Evans-Innes Avenues, Oakdale Avenue west of Third Street, Industrial Street, Silver Avenue, and Harney Way should function as major streets.
5. A new cross-district major street should be developed using portions of Bancroft, Carroll, and Egbert Avenues.
6. Local streets should be adjusted insofar as possible to discourage through traffic, particularly through residential areas. The proposed change of Gilman and Palou Avenues to function as local streets rather than major streets should be noted.
7. Third Street should serve as the spine of the public transit system, providing service via this

route to downtown and to employment centers in San Mateo County.

8. Neighborhood feeder bus service should be upgraded and these lines should be extended to provide non-transfer service to key destinations in the western part of the City, and to BART stations.

RESIDENCE

OBJECTIVES 3 and 4

TO CONSERVE AND ENHANCE EXISTING SOUND RESIDENTIAL AREAS AND TO BUFFER RESIDENTIAL USES FROM NEARBY INDUSTRIAL USES,

TO GUIDE AND ENCOURAGE THE BUILDING OF PROPERLY LOCATED WELL-DESIGNED HOMES WHICH WILL MEET THE NEEDS OF THE PEOPLE AND ALLOW FOR THE GROWTH OF A STABLE, VARIED POPULATION.

POLICIES AND PLAN PROPOSALS

1. In that existing residential neighborhoods are basically sound, Federally Assisted Code Enforcement (FACE) should be programmed in consenting neighborhoods.
2. Minor adjustments in street patterns and zoning districts should be used to define the boundaries between homes and industry.
3. The density in existing neighborhoods should remain low.
4. No additional public housing projects should be developed. Any additional public housing which is made available through such programs as leasing and rent subsidy programs should be scattered and indistinguishable from neighboring development.
5. A low to medium-density residential development should be built on Hunters Point Ridge as described in the Redevelopment Plan for that area.

South Bayshore Area Plan

6. A development of approximately 600 residential dwelling units should be built at Candlestick Cove as described in the San Francisco Executive Park Sub-Area Plan.
7. A development of approximately 200 homes should be built on the north slope of Bayview Hill adjoining the Bret Harte Neighborhood.
8. New residential development should be oriented toward family occupancy, should be racially integrated, and priced to meet the needs of a full range of income requirements.

EDUCATION

OBJECTIVE 5

TO PROVIDE ATTRACTIVE, CONVENIENTLY LOCATED SCHOOLS, TO SERVE THE NEEDS OF THE COMMUNITY.

POLICIES AND PLAN PROPOSALS

1. Three new elementary schools should be constructed within the district: two to serve Hunters Point Ridge, and one to serve the new residential neighborhood east of Candlestick stadium.
2. Jedediah Smith Elementary School should be renovated.
3. Bayview Elementary school should be rebuilt on an enlarged site.
4. Further consideration should be given to development of a secondary school and higher education complex for which alternative sites are suggested.

RECREATION

OBJECTIVES 6 and 7

TO PROVIDE ADEQUATE, PROPERLY LOCATED RECREATIONAL FACILITIES.

TO MAKE THE WATERFRONT A RECREATIONAL ASSET TO THE SOUTH BAYSHORE AND TO THE ENTIRE CITY.

POLICIES AND PLAN PROPOSALS

1. A shoreline park and marina is proposed in the tidelands east of Candlestick Stadium.
2. A marine-oriented recreation area is proposed at India Basin.
3. Bayview Park should be improved, enlarged, and made more accessible.
4. The shoreline at Candlestick Cove should be accessible to the public for recreational purposes.
5. All existing playgrounds and recreation facilities are proposed to be retained.
6. Gilman Playground should be expanded to the north across Gilman Avenue.
7. Three new recreation-park facilities are proposed in accordance with plans for the redevelopment of Hunters Point Ridge.
8. A major playground should be developed in the vicinity of Thomas Avenue and Ingalls Street.
9. New recreation-park facilities to serve future neighborhoods are proposed at Candlestick Cove and for the shoreline neighborhood.
10. The north tunnel-top play area on Palou Avenue and the proposed south tunnel-top play area on Diana Street should ultimately be enlarged into small parks. A small park and play area is proposed adjoining Gould Street.
11. In addition small play areas, linear parks and planted buffer zones should be developed.
12. Neighborhood activities centers should be developed on Hunters Point Ridge, in Bret Harte Neighborhood, and at Silver Terrace.
13. A community center is proposed including a cultural center and space for other community activities around an urban plaza at Third and Mendell Streets and Oakdale Avenue.
14. The Opera House is proposed to be retained and rehabilitated, and together with the Joseph Lee Recreation Center should become a part of the community center complex.

The San Francisco Master Plan

PUBLIC HEALTH & SAFETY

OBJECTIVE 8

TO PROVIDE ADEQUATE, EFFICIENT, AND PROPERLY LOCATED PUBLIC HEALTH AND SAFETY FACILITIES.

POLICIES AND PLAN PROPOSALS

1. Space should be provided in or near the community center for a variety of public services. Among these services should be a permanent public health substation and a police-community relations office.
2. Further consideration should be given to the development of a community hospital for which alternative locations are proposed.
3. A new fire station is proposed to be constructed east of Candlestick Stadium.

4. Auto-oriented commercial uses should be located outside the core area.
5. Adequate parking should be provided for the core commercial area.
6. Improvements in the Third Street commercial district should include tree planting, street furniture, and sign control.
7. Other existing commercial areas should remain.
8. New neighborhood shopping centers are proposed on Hunters Point Ridge, and in the tidelands area.
9. A new commercial area should be developed in connection with the marina and recreation complex at India Basin.
10. A marina and commercial recreation pier is proposed in the shoreline park east to Candlestick Stadium.

COMMERCE

OBJECTIVE 9

TO IMPROVE THE SHOPPING AREAS AND TO ATTRACT APPROPRIATE COMMERCIAL INVESTMENT FOR THE GREATER CONVENIENCE AND PLEASURE OF THE PEOPLE WHO LIVE AND WORK IN THE COMMUNITY.

POLICIES AND PLAN PROPOSALS

1. Third Street should be retained and enhanced as the district's principal commercial district.
2. The proposed community center should be developed within the Third Street commercial core.
3. Commercial activities are proposed to be intensified in the core portion of Third Street between Kirkwood and Thomas Avenues. Residences and offices should be developed in the core area above commercial uses.

INDUSTRY

OBJECTIVE 10

TO PROVIDE JOB OPPORTUNITIES BY ENCOURAGING INDUSTRIAL DEVELOPMENT BEST SUITED TO THE CITY'S ECONOMIC BASE AND TO THE SOUTH BAYSHORE DISTRICT.

POLICIES AND PLAN PROPOSALS

1. Generally, industry in the district should be attractive in appearance and labor intensive.
2. The redevelopment process should be used in South Basin to accelerate the development of vacant industrial lands, to overcome such problems as the inappropriate street pattern, and to create new job opportunities.
3. Adjustments in zoning boundaries should be considered and landscaped strips should be developed to separate industry from residence.

South Bayshore Area Plan

4. Except for marine uses, the shoreline should not be used for industry.
5. Planning Code amendments should be considered to improve off-street parking and loading requirements and to impose controls on the appearance of open storage yards.

URBAN DESIGN

OBJECTIVES 11 and 12

TO ENHANCE THE DISTRICT'S POSITIVE FEATURES, TO UNIFY THE DISTRICT VISUALLY, AND TO GIVE DEFINITION TO SUB-AREAS.

TO IMPROVE THE APPEARANCE OF THE AREA FOR THOSE WHO LIVE THERE, AND TO MAKE THE SOUTH BAYSHORE AN ATTRACTIVE AND INTERESTING PLACE TO VISIT.

POLICIES AND PLAN PROPOSALS

1. The shoreline should be stabilized, with a limited amount of fill to create land for recreational and port purposes and with the greater part of the platted tidelands to remain open water.
2. Parks are proposed along the length of the non-industrially used shoreline. In general there should be a new emphasis on the water as a visual asset and upon linking the district with the shore.
3. Appropriate development at the important Bayview Hill Candlestick Cove gateway to the City should be undertaken in accordance with the Plan.
4. The hills should be emphasized as design features and the hilltops kept as open landscaped view points.
5. Freeways should be landscaped and developed to function as linear parks.
6. The configuration of Port fill at India Basin should be compatible with recreation and park development in the Basin, and, where appropri-

ate, the edge of this fill should be landscaped and accessible to the public.

7. Fill in the southern portion of the Naval Shipyard should not exceed that shown in the Plan, and southern shore should be landscaped.
8. A district-wide program of street tree planting and landscaping should be undertaken.
9. In addition to landscaping, proposed improvements in the neighborhoods should include narrowing and closing of selected streets.
10. Landscaped buffer strips should be developed which will delineate use districts and screen industry from homes.
11. The community center at Third Street in the commercial core should serve as a focal point for the entire district.
12. Structure or architectural and historic interest should be preserved.

SUMMARY

The development plan for the South Bayshore district includes and coordinates the elements discussed in the preceding section. Circulation, housing, community facilities, including schools, parks and playgrounds, and health and safety facilities, commerce, industry, and urban design are all components of the Plan. The Plan, however, is more than the sum of these parts. It is a blend of the various elements, and depends as much on the interaction and relationship between land uses as it does on the location and extent of the uses proposed.

For instance, the linkage between industrial areas and major circulation proposals is evident in the overall Plan, and the suggested treatment of minor streets, designed to separate industrial and residential traffic, and to discourage through traffic in residential neighborhoods, becomes more meaningful when the individual elements of the Plan are merged.

The conservation and enhancement of existing sound residential areas and the provision of new housing with a potential for social and economic diversity is an important city-wide issue as well as a primary community concern. The potential compatibility of existing

The San Francisco Master Plan



SOUTH BAYSHORE PLAN

Map 1

- Low Density Residential
- Medium Density Residential
- Candlestick Park
- Park Recreation Planted Area
- Commercial
- Industrial
- Support Facilities Naval Shipyard
- Alternate Sites for Higher Educational Facilities

- S** School
- M** Mini Park
- C** Community Center
- N** Neighborhood Center
- L** Library
- H** Public Health Center
- P** Police Station
- F** Fire Station

- Local Street
- Secondary Thoroughfare
- Major Thoroughfare
- Freeway
- SF Railroad and Station
- See Sub-Area Plan for San Francisco Executive Park
- Refer to The Transportation Element for Criteria for State Route 230

South Bayshore Area Plan

low-density residential areas with the new, somewhat higher-density housing proposed near the shoreline, on Hunters Point Ridge, and on the higher slopes of Bayview Hill becomes apparent in the Plan, as does the better balance, within the district, of residential and industrial land.

The Plan also indicates the close bond between residential use and the proposed system of schools, playgrounds and shopping centers. The intent to contain industry and protect residential areas by buffers of planting and park strips becomes evident as these parts of the Plan are brought together.

Curtailment of fill and creation of parks and marinas at India Basin and in the Candlestick tidelands is a response to the expressed desire of the people of the South Bayshore and the surrounding communities as well as from more remote districts for recreation areas on the eastern shore of the City. The relationship of the shoreline to new residential areas, the accessibility of shoreline parks to high employment centers as well as to residents of the area and the linkage of this shoreline park system to the rest of the City and the region are major contributions of the proposed Plan.

It is these relationships which give the Plan meaning and purpose and integrity in response to the goals for development of the district which were established by the community. The Plan, being responsive as well to trends and issues in surrounding communities, and to City-wide goals and objectives, also relates the South Bayshore more closely to the rest of the City.



SUBAREA PLAN FOR SAN FRANCISCO EXECUTIVE PARK

OBJECTIVE 13

TO CREATE, AS A "GATEWAY TO THE CITY", A BALANCED URBAN DEVELOPMENT WHERE OFFICE, RETAIL SPACE AND A HOTEL ARE INTEGRATED WITH A CENTRAL PLAZA, PROMENADES, AND OPEN SPACE, WITH A NEW RESIDENTIAL COMMUNITY TO THE EAST.

The policies below shall apply to development of the Executive Park subarea. The Land Use Plan for the 71 acre Executive Park subarea appears in Map 2. The Circulation Plans (Automobile Access, Automobile Egress and Internal Automobile Circulation) appear in Maps 3, 4, and 5 and the Urban Form (height and bulk) Plan appears in Map 6.

POLICY 1: OFFICES

Develop a maximum of 1,700,000 square feet of office space. Locate all new office space, excluding office buildings OB-1, OB-2, OB-3, and OB-4 as shown on Map 2, north of Executive Park Boulevard in buildings which range in height from 4 stories to 15 stories, becoming taller the closer they are to the center. The massing of the structures, stepping up and back from the street incrementally, should reflect the form of the hillside to the north and reinforce the urban character of the project. Each building should extend out to the edge of the street incorporating an arcade which covers the sidewalk.

POLICY 2: TOWN CENTER

Develop a Town Center which is centrally located between existing and new development at the intersection of the pedestrian arcade which connects all office buildings north of Executive Park Boulevard and the pedestrian promenade which links the office/retail buildings with the hotel and surrounding offices south of the boulevard. At the base of the tallest office buildings, develop a plaza surrounded by retail arcades as a gathering place for the Executive Park community as well as the surrounding communities.

The San Francisco Master Plan

POLICY 3: HOTEL

Develop a hotel/meeting building with approximately 350 rooms primarily to serve office uses in the area. Locate the hotel directly south of the pedestrian promenade to create a counterpoint on axis with Town Center. Provide garage space for the hotel and the displaced surface parking under the hotel. Provide access to the hotel off Executive Park Boulevard to the north, via a pedestrian promenade and a formal vehicular access of the intersection of Alana Way and Harney Way.

POLICY 4: RETAIL USES

Provide approximately 45,000 square feet of retail space integrated with the office uses and situated primarily around the Town Center. Orient retail uses to serve office workers and residents of the area as well as those of surrounding communities. Provide additional retail space within the hotel. Allow a restaurant south of Alana Way.

POLICY 5: RESIDENTIAL COMMUNITY

Develop approximately six hundred units of housing (a considerable number should be two bedrooms) on the eastern portion of the site in two- to four-story structures over one- to two-level parking podiums. Construct the western-most cluster of housing around an automobile turnaround to create a gateway from the central site into the residential area. Construct the balance of the housing units to the east, following the form of the hillside contours. Include children's play area(s) and if feasible, some convenience retail shopping.

POLICY 6: OPEN SPACE

Develop approximately twenty-six acres of the subarea as a hillside park and develop hillside trails as pedestrian links to the park from the Town Center, Bayview Hill Park and Candlestick Point State Recreation Area. At various locations and elevations construct a series of scenic vistas which allow people to rest, picnic, and enjoy the view of the bay.

Create a variety of landscaped zones on the hillside. The area adjacent to the freeway should be densely planted with trees and shrubs. Trees should be used to screen the parking structure as well as provide an appropriately scaled backdrop to the office buildings. The northern-

most zone adjacent to Bayview Hill Park should be planted with trees and shrubs which are similar to those already growing within it, visually integrating both sides of the hill. The central portion of the hill should be planted with smaller shrubs and cascading plant materials which will cover the hillside with low growing vegetation, thereby softening the quarried texture of the exposed rock.

Limit overall building coverage in the development area (excluding the area designated OS in Map 6) to 50% and in the entire site 35%. Landscape the open area not used for streets and parking areas with ornamental plantings and coordinated flowering ground covers to provide a continuous series of related open spaces and to create a unified visual environment.

POLICY 7: TRANSPORTATION MANAGEMENT PROGRAM

Develop and implement a comprehensive transportation management program (TMP) in cooperation with the City, transit operators, ridesharing agencies and other agencies or organizations, to reach a long-term goal that at least seventy (70) percent of subarea employees will commute by transit, ridesharing, or some mode alternative to single-occupant vehicle.

Provide continuing on-site transportation brokerage services over the life of the project for subarea employees, residents and visitors, to coordinate a phased program of reduced trip-making by single-occupant vehicle for both commute and non-commute travel.

POLICY 8: PARKING

Limit the total number of commuter parking spaces to an amount proportionate to the long-term goal that at least 70 (seventy) percent of subarea employees will commute by transit, ridesharing, or some mode alternative to single-occupant vehicle. The amount of commuter parking to be provided at each phase of additional development shall be determined based on specific modal split goals for the cumulative number of employees projected to be employed at the subarea by the end of each development phase. Modal split goals shall include progressive reduction at each phase of total employees driving in single-occupant vehicles, from the current (1985) 81 percent to no more than 30 percent at office buildout. The amount of office visitor parking shall be determined at each development phase. The

South Bayshore Area Plan

total of commute and visitor parking spaces for office uses shall not exceed 1 space per 500 square feet of net rentable floor area.

Allow 1.5 parking spaces per unit for residential uses. Parking for retail, and restaurant patrons and visitors shall be provided at no more than two spaces per 1,000 square feet of net rentable floor area, and shall be reviewed at each development phase, based on demonstrated and projected need for parking to accommodate trips from outside the subarea. The amount of parking to be provided for hotel use will be determined at the project approval phase based on projected need for such parking, and shall not exceed one space per guest room.

Develop parking facilities to adequately serve the uses in all commercial buildings, with preferential rideshare and short-term visitor/patron parking provided closest to

building entrances, design commercial parking structure to blend visually with the hillside, and soften visual impact of parking facilities by landscaping terraced levels with trees and cascading shrubs.

POLICY 9: TRANSIT

Provide continuing shuttle service throughout the day between the subarea, downtown and other regional transportation terminals as a supplement to public transit service, with sufficiently short headways to encourage their use and reduce dependency on autos for both commute and non-commute transportation needs. Such shuttle service shall be evaluated every three years to determine if patronage and market are sufficient to support public transit service for both commute and non-commute needs at the same levels of service.

**The 1994 Brisbane General Plan
City of Brisbane**

Excerpt from Chapter XII: Subarea Policies

XII.12 BAYLANDS

Local Economic Development

Policy 328.2 Require a program by the developer encouraging employment of Brisbane residents in the construction phase and in the operation of future businesses.

Land Use

Policy 329: Prior to or in conjunction with the first Specific Plan for the Baylands subarea, a Concept Plan shall be submitted, which shows the disposition of the entire site. The Concept Plan shall include the following:

1. an overall conceptual plan, illustrative in nature, showing uses and locations by means of bubble and schematic diagrams with an accompanying text;

2. a general description of conceptual uses, densities, intensities and locations consistent with the adopted General Plan;

3. a listing of responsible State, Federal or local agencies which have jurisdiction over the development of the site in the manner contemplated by the Concept Plan and a description of the studies to be concluded and the issues to be resolved with such agencies.

Prior to or in conjunction with any subsequent Specific Plan, the applicant shall provide an updated Concept Plan for City consideration. The conceptual plan need not represent a commitment by the owner to any form of development. In no event shall a submitted Concept Plan be deemed an application for any form of development project approval under the City's subdivision or Zoning regulations.

Policy 329.1 Adopt one or more Specific Plans and accompanying environmental impact reports prior to any development of the subarea.

Policy 330 In any Specific Plan which may be prepared for less than the entire Baylands subarea, demonstrate the major circulation, open space and utilities for the remainder of the property.

Program 330a: Environmental review for all Specific Plans shall include a visual impact analysis which shall include an evaluation of the impacts of building heights, including the impact of the proposal on view corridors.

Program 330b: Specific Plans shall address the heights of buildings and building groups to achieve the following:

- a. diversity of height within the subarea;*
- b. creative excellence in architectural and site design;*
- c. visual acceptability when seen from above;*
- d. a complementary relationship to the overall topography, especially the Lagoon, San Bruno Mountain and the Bay, and the entrance to Central Brisbane;*
- e. open space and open areas.*

Development south of the Bayshore Basin drainage channel shall maintain a low profile permitting low or mid rise buildings, not to exceed six stories in height, in order to preserve the existing views of San Francisco and San Francisco Bay as seen from Central Brisbane, and to maximize the amount of landscape and open space or open area in this portion of the subarea.

The following design approaches shall not be included in any specific plan or development proposal:

a. Buildings or building groups that block view corridors to the Bay, or appear as "fortresses" or "walls" lining the Bayfront, the Lagoon or any arterial street.

The public has expressed opposition to housing in the Baylands, both for its effect on the small-town quality of Brisbane and because of a concern over the toxic contamination at the site.

Policy 330.1 Prohibit housing on the Baylands.

Policy 331 Maximize opportunities for open space and recreational uses in any land use planning for this subarea.

Policy 332 Establish standards and parameters for any interim uses of the property.

Policy 333 Establish a safety buffer around and provide for visual screening of the Tank Farm.

Policy 334 Encourage an adaptive reuse of the Roundhouse and other structures identified as having historic, cultural and unique architectural value.

Policy 335 Give aesthetic consideration to views of San Bruno Mountain, the Bay and the Baylands development itself from Central Brisbane as well as views from the Baylands in the design of any development.

Policy 336 Consider methods for enhancing interaction between the residential community in Central Brisbane and uses on the Baylands. Methods may include pedestrian, bicycle and vehicular connections, recreational uses and educational facilities.

Policy 337 Include a phasing schedule for development to limit the adverse impacts of too rapid growth.

Policy 338 Buffer development from the Heavy Commercial uses in the Beatty Subarea.

Policy 339 Develop design guidelines as a part of every Specific Plan for the subarea. In the design guidelines, incorporate standards for roofs, emphasizing color, materials and screening, so as to consider views from above.

Policy 339.1 If UCSF decides it wants to build a campus in Brisbane, and if the City approves the proposal, a development or other agreement between the City and the University would be a precondition of approval, to ensure that

conditions and mitigations that would make the development acceptable to the City and its people are included.

Transportation and Circulation

- Policy 340** Include street standards in all Specific Plans for the subarea.
- Policy 340.1** Require the property owner to demonstrate the feasibility of connecting Geneva Avenue to Highway 101 prior to or with the first Specific Plan. Include an estimate of costs.
- Policy 341** Locate a new train station, upgrade the existing station, and provide the opportunity for intermodal mass transit facilities.
- Policy 342** Mitigate traffic impacts by improved access to public transportation, by construction of street and intersection improvements, and by implementing the measures adopted by the City in Transportation System Management, Transportation Demand Management and Congestion Management Plans.
- Policy 343** Develop a pedestrian and bicycle system to reach all areas of the City from the Baylands.
- Policy 344** Connect all development within the Baylands with bicycle and pedestrian networks.
- Policy 345** Work with other agencies to promote interconnection with regional bicycle systems.
- Policy 346** Include the upgrade or replacement of Tunnel Avenue and its overpass or alternative access in the circulation plan for the Baylands.
- Policy 347** Cooperate with other agencies to develop the Bay Trail between Sierra Point and the Candlestick Recreation Area.

Open Space/Conservation

- Policy 348** Enhance the natural landform and biotic values of Icehouse Hill and preserve its ability to visually screen the Tank Farm.
- Policy 349** After the water environment is determined to be safe for public access, develop public water-related passive recreation at the Brisbane Lagoon, with due concern for the preservation and enhancement of the wetlands.
- Policy 350** Develop a public pathway and access facilities immediately adjacent to the Lagoon.

- Policy 351** **Establish a buffer zone between the Lagoon and adjacent uses.**
- Policy 352** **Plan for landscape improvements to the lands around the Lagoon, including screening of the industrial structures adjacent to Bayshore Boulevard from the Lagoon.**
- Policy 353** **Consider a possible golf course if compatible with environmental and conservation concerns.**
- Policy 354** **Dedicate land area for open space, recreational uses and wetlands restoration, especially around the Lagoon.**
- Policy 355** **Provide in-lieu fees for the acquisition of open space or land dedication in conjunction with development.**
- Policy 356** **Preserve open areas east of the Caltrans Highway 101 right-of-way as Bayfront.**
- Policy 357** **Identify wildlife habitats and encourage programs to retain and/or enhance their natural features and habitat values in consultation with responsible agencies and independent professionals.**
- Policy 358** **Investigate methods to improve water quality in the Lagoon without adversely impacting waterfowl and fish.**
- Policy 359** **Seek opportunities to enhance and restore wetlands in consultation with responsible agencies.**
- Policy 360** **Incorporate new construction standards for energy efficiency and water conservation.**
- Policy 361** **Require water-conserving landscape plans, including suitable plant materials and irrigation systems, and explore the use of non-potable water.**
- Policy 362** **Support County and regional efforts to maintain and improve water quality in San Francisco Bay. Work closely with responsible agencies to assure monitoring of the landfill so as to avoid toxic leaking into the Bay and to have property owners repair any leaks.**
- Policy 363** **Improve water circulation and water quality in the Lagoon by control of sedimentation and by careful monitoring and maintenance of underground pipelines by responsible agencies.**

- Policy 364** **Maximize energy conservation and encourage recycling through site planning and building design.**

Community Health and Safety

- Policy 365** **Comply with applicable Federal, State and regional standards for development on landfill.**
- Policy 366** **Meet applicable seismic requirements in all construction, with special attention to non-engineered fill.**
- Policy 367** **Develop grading and drainage controls for landfill.**
- Policy 368** **Comply with the requirements of remediation plans approved by the Department of Toxic Substances Control, the Water Quality Control Board and other responsible agencies in conjunction with development on lands that have been contaminated by toxic substances.**
- Policy 369** **Disclose, in a risk analysis, all hazardous materials to be utilized in research and development and biotechnical research, the assumptions that were used, and methods of safe handling and disposal. The City has a concern with and may exclude research and development and biotechnical research uses which involve high use or generation of hazardous materials and/or do not address public safety in handling and disposal to the City's satisfaction.**
- Policy 370** **Provide risk assessment analysis identifying toxic contamination, landfill limitations and other related factors and resultant environmental impacts in order to address, mitigate and disclose the characteristics of the land and its suitability for safe development.**
- Policy 371** **Disclose the underlying assumptions of all risk analyses for toxic lands and lands that are considered at risk for liquefaction.**
- Policy 372** **Development and/or redevelopment in this subarea shall include provisions for essential services and adequate public safety facilities.**
- Policy 373** **Utilize landscape and construction techniques to reduce noise impacts.**
- Policy 373.1** **Work closely with the Integrated Waste Management Board and the Bay Area Air Quality Management District to assure monitoring of regulatory air quality issues, especially those pertaining to grading, surcharging and methane emissions, by regulatory agencies.**

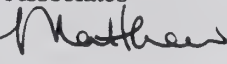
Traffic, Circulation, and Parking



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MEMORANDUM

Date: February 16, 1996
To: Michael Rice, EIP Associates
From: Matthew Ridgway 
Re: UCSF Parnassus Heights Area On-Street Parking Study

As an on-going part of the UCSF Long Range Development Plan process, Fehr & Peers Associates was asked to conduct current day time on-street parking occupancy studies in the vicinity of the Parnassus Heights campus. Additionally, we were asked to determine the utilization characteristics of parking spaces. This memorandum briefly describes the findings of this analysis.

Data Collection Methodology

Fehr & Peers Associates staff conducted an inventory of all legal on-street parking spaces on the surrounding streets of the Parnassus Heights campus on Wednesday, January 10, 1996. The study area is shown in Figure 1. Weekday parking occupancy counts were conducted on the same day between 7:30-8:30 AM and between 2:00-3:00 PM. Additional information such as parking time restrictions, street cleaning, and residential permit parking were also recorded.

In order to estimate the utilization of on-street spaces by UCSF-related parkers, an informal random survey of parkers was conducted in the immediate vicinity of the campus between 10:30-11:30 AM. The streets included Parnassus Avenue west of 5th Avenue, Irving Street west of 5th Avenue, 5th Avenue north of Parnassus, and 4th, 3rd, and 2nd Avenues. Figure 1 shows the sample survey streets.

Inventory and Occupancy

As shown in Table 1, the study area has approximately 1,845 on-street parking spaces. Of those, 51% are unlimited parking, 43% are residential permit parking with 2 hours of limited parking for non-permit parkers, 5% are metered parking, and 1% are metered motorcycle parking. Metered parking consists of 30 minute, one hour, and two hour meters for passenger cars and 10-hour for the motorcycles.

Figure 2 shows the types of parking spaces in the area. Generally, the north-south streets to the west of the campus and in its immediate vicinity on 9th, 8th, 6th, 5th, 4th, 3rd, and 2nd Avenues, are residential permit controlled parking spaces. Approximately 130 of the 477 spaces in this area have unlimited parking on 9th Avenue from Lawton Street to Judah Street and on 8th Avenue from Kirkham Street to Lincoln Way. Metered parking is limited to 21 spaces on 8th and 3rd Avenues.



The east-west streets in the immediate vicinity of campus, Parnassus Avenue and Irving Street, have a mix of metered and residential permit controlled parking. Parnassus Avenue in front of the UCSF buildings is the only street with strictly metered parking. The areas to the north and east of the campus have the majority of the unlimited parking in the area. From Clayton Street to Stanyan Street and on Frederick Street, Martin Luther King Jr. Drive, and Kęzar Drive, there are approximately 673 unlimited spaces. South of the campus on Clarendon Avenue, between Christopher Drive to Johnstone Drive, there are 40 unlimited spaces. Parkers on Clarendon Avenue use the campus shuttle which circulates on Johnstone Drive and Medical Center Road out to Parnassus Avenue. Other streets near Clarendon Avenue are mostly residential and unoccupied.

Table 1 shows parking occupancy by type of parking. On-street parking occupancy in the vicinity of the campus is saturated by 9:00 AM, with an overall 94% occupancy. Metered passenger car parking is effectively saturated. Motorcycle meters are also approaching saturation. Permit controlled and unlimited parking are also approaching saturation, but have a small increment of unutilized capacity.

The PM utilization shows an overall 89% occupancy. The utilization of permit controlled spaces decreases by 10% from the AM peak, due mostly to a lower number of residential permit parkers.

Figures 3 and 4 show the occupancy by street and peak period. On a block-by-block basis, some parking was observed to be over 100% occupied due to illegally (vehicles in red zones and driveways) and double parked vehicles. Parking tickets were observed on several illegally parked vehicles, particularly vehicles in violation of street cleaning restrictions. Other blocks were observed to be less than 85% occupied.

In general, on-street parking closest to the Parnassus Height campus is fully saturated and some of the parking located several blocks away was observed to be less than saturated. The AM and PM occupancy survey indicates that only three streets currently have parking spaces that are not fully utilized. As Figures 3 indicates, permit parking spaces on 9th and 8th Avenues are available, but under-utilized perhaps due to their two hour time limit and distance away from the campus. The unlimited spaces on both streets are fully saturated in the AM and PM. Clarendon Avenue was under-utilized in the AM, at 38% occupancy, but filled up to 85% occupancy in the PM.

Interview Survey Findings

The results of the informal random survey, taken between 10:30-11:30 AM (the highest accumulation period for the campus) showed that of the 44 respondents, 36 parkers in the immediate vicinity of the campus are UCSF-related. The primary questions asked were:

	YES	NO	TOTAL
1. Are you going to or coming from UCSF?	82%	18%	100%
2. If yes, how are you affiliated with UCSF?	Student	33%	
	Staff/Researcher	26%	
	Patient	22%	
	Visitor	8%	
	Vendor/Contractor	11%	
	TOTAL	100%	



Respondents were also asked how often they parked in the short-term parking on Parnassus Avenue, Irving Street, and 2nd, 3rd, 4th, and 5th Avenues. The majority of staff and students parked often in the short-term parking from once per week to as much as five times per week. Several students were residents in the area and were displaying residential permits. Three staff reported moving their vehicle every two hours to avoid parking violation tickets. Other staff responded that they usually parked in remote off-street lots or in the unlimited parking spaces on Martin Luther King Jr. Drive, Kezar Drive, or Frederick Street. Patients reported parking in two hour spaces for most of their appointments, as did visitors, but said that their stay rarely went past the two hours.

Expected Future Parking Conditions

A potential increase in parking demand for the surrounding areas was also assessed for the site based on the proposed Long Range Development Plan. The average daily population of staff at the Parnassus Heights campus is expected to drop by 426 at build-out. A resulting drop of in the demand for parking of about 190 parking spaces is expected.

However, due to changes in the medical field, a large increase is expected in the populations of outpatients and visitors. This UCSF population is expected to increase by 925 patients/visitors a day. This increase in population would result in a demand for an additional 190 parking spaces. The reason that the such a large population increase results is a relatively small increase in parking demand is that visitors and outpatients have shorter parking durations so that many users can essentially share a parking space over the course of a day instead of one car occupying the space for a period of eight or more hours.

The net new peak hour parking demand is expected to increase by 3 spaces (See Table 2), which is smaller than the margin for error in these calculation. Essentially overall parking demand is expected to remain constant. Although the total parking demand will remain constant, the demand for long-term parking will decrease because of the reduction in professional researchers and employees and the demand for short-term parking will increase because of the increases in patients and visitors.

In addition to the small increase in parking demand, 11 automobile and 24 motorcycle parking spaces on Irving Street between 2nd and 3rd Avenues would be lost to accommodate bus and loading improvements near the campus. The spaces will be used to build "tow-away, no stopping zones" for handicapped accessible platforms for the new MUNI Metro Keystop. The "tow-away, right lane must turn" lanes also established by the Board of Supervisors will result in an additional loss of 6 automobile spaces between the hours of 8:00 AM to 6:00 PM. MUNI is currently negotiating with City of San Francisco Department of Parking and Traffic to allow more parking on the north side of Irving east of 2nd Avenue so that the overall net loss might be reduced.

Table 3 summarizes expected parking conditions with the loss of on-street parking associated with MUNI projects (17 parking spaces) and with the expected increase in parking demand associated with the LRDP (3 parking spaces). For the purposes of this analysis, it has been assumed that in addition to the 17 passenger car metered parking spaces lost as a result of the MUNI project, 3 additional passenger car metered parking spaces would be lost in order to accommodate a relocation of the 24 motorcycle metered parking spaces.



In the residential areas surrounding the Parnassus Heights campus, there are two hour parking restrictions for all users except those displaying residential parking permits. During most periods of the day, this is the parking with the lowest parking occupancy. It is likely that the shift toward users requiring short-term parking will result in greater occupancies of this parking supply. Since there is not adequate supply in the residential areas to accommodate all of the expected increase in demand for short-term parking, it is likely that demands for permit controlled and unlimited parking spaces will reach a balance at about 90% occupancy for both types of parking. This will represent an increase of 5% (43 spaces) in parking demand in residential areas and a decrease of 2% (23 spaces) in parking demand for unlimited parking spaces.

Conclusions and Recommendations

The LRDP would result in increased use of two-hour neighborhood parking, because of the increased demand for short-term parking. It would also result in a slight decrease in the demand for unlimited parking. It would not be expected to effect metered parking conditions since this parking is fully occupied and will continue to be fully occupied. The effects of the MUNI projects on metered parking, however, will be significant as these projects will remove 17 of the most heavily utilized parking spaces. Replacement of lost parking spaces on Irving Street between 2nd and 3rd Avenues is highly desirable. Special effort should be made to accommodate the 24 motorcycle spaces in another location because motorcycle parking is space efficient and has a high rate of utilization.

TABLE 1
SUMMARY OF EXISTING ON-STREET PARKING (1)
UCSF LRDP EIR - Parnassus Heights

<i>AM</i>				
<i>Types of Spaces</i>	<i>Total Spaces</i>	<i>Percent of Total</i>	<i>Number Occupied</i>	<i>Percent Occupancy</i>
Metered (2)				
- Passenger Car Parking	94	5%	91	97%
- Motorcycle Parking	24	1%	22	92%
Permit Controlled	796	43%	759	95%
- Parked Vehicles with Permits			(388)	
- Parked Vehicles without Permits (3)			(371)	
Unlimited	955	51%	885	93%
TOTAL	1,869	100%	1,757	94%

<i>PM</i>				
<i>Types of Spaces</i>	<i>Total Spaces</i>	<i>Percent of Total</i>	<i>Number Occupied</i>	<i>Percent Occupancy</i>
Metered (2)				
- Passenger Car Parking	94	5%	89	95%
- Motorcycle Parking	24	1%	24	100%
Permit Controlled	796	43%	673	85%
- Parked Vehicles with Permits			(289)	
- Parked Vehicles without Permits (3)			(384)	
Unlimited	955	51%	881	92%
TOTAL	1,869	100%	1,667	89%

NOTES:

- (1) See Tables 1 and 2 in the Appendix of this report for a full list of streets surveyed.
(2) Metered parking consists of half-hour, one-hour, and two-hour meters.
(3) Parked Vehicles without Permits refers to parking that has a time limit of two hours without a permit.

Source: Fehr & Peers Associates' inventory count conducted on Wednesday, January 10, 1996.

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2/16/96

TABLE 2

**NET NEW PEAK HOUR PARKING DEMAND
UCSF LRDP EIR - Parnassus Heights**

Campus Population Category (1)	Trip Generation Changes (1)	Projected Peak Hour Parking Demand (2)
Faculty	0	0
Professional Researchers	(201)	(84)
Employees	(246)	(103)
Students	0	0
Patients	763	107
Visitors	450	83
Vendors/Service	0	0
Total	767	3

NOTES:

(1) UCSF LRDP EIR, 1996.

(2) Parking demand estimates are based on the net new vehicle trip generation by mode:

See Fehr & Peers Associates, UCSF LRDP EIR - Parnassus Heights, January 1996.

Parking demand estimates assume that 84% of faculty/staff, 82% of students, 37% of visitors, 28% of patients and 60% of vendors are on-site during the peak parking demand period.

Peak hour is between 8:00-9:00 AM.

(xxx): Vehicle trips lost with proposed project implementation.

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TABLE 3
SUMMARY OF EXPECTED ON-STREET PARKING (1)
UCSF LRDP EIR - Parnassus Heights

<i>AM</i>				
<i>Types of Spaces</i>	<i>Total Spaces</i>	<i>Percent of Total</i>	<i>Number Occupied</i>	<i>Percent Occupancy</i>
Metered (1)				
- Passenger Car Parking	74	4%	72	97%
- Motorcycle Parking	24	1%	22	92%
Permit Controlled	796	43%	759	95%
- Parked Vehicles with Permits			(388)	
- Parked Vehicles without Permits (2)			(371)	
Unlimited	955	52%	907	95%
TOTAL	1,849	100%	1,760	95%

<i>PM</i>				
<i>Types of Spaces</i>	<i>Total Spaces</i>	<i>Percent of Total</i>	<i>Number Occupied</i>	<i>Percent Occupancy</i>
Metered (1)				
- Passenger Car Parking	74	4%	72	97%
- Motorcycle Parking	24	1%	24	100%
Permit Controlled	796	43%	716	90%
- Parked Vehicles with Permits			(289)	
- Parked Vehicles without Permits (2)			(427)	
Unlimited	955	52%	858	90%
TOTAL	1,849	100%	1,670	90%

NOTES:

- (1) Metered parking consists of half-hour, one-hour, and two-hour meters.
 (2) Parked Vehicles without Permits refers to parking that has a time limit of two hours without a permit.

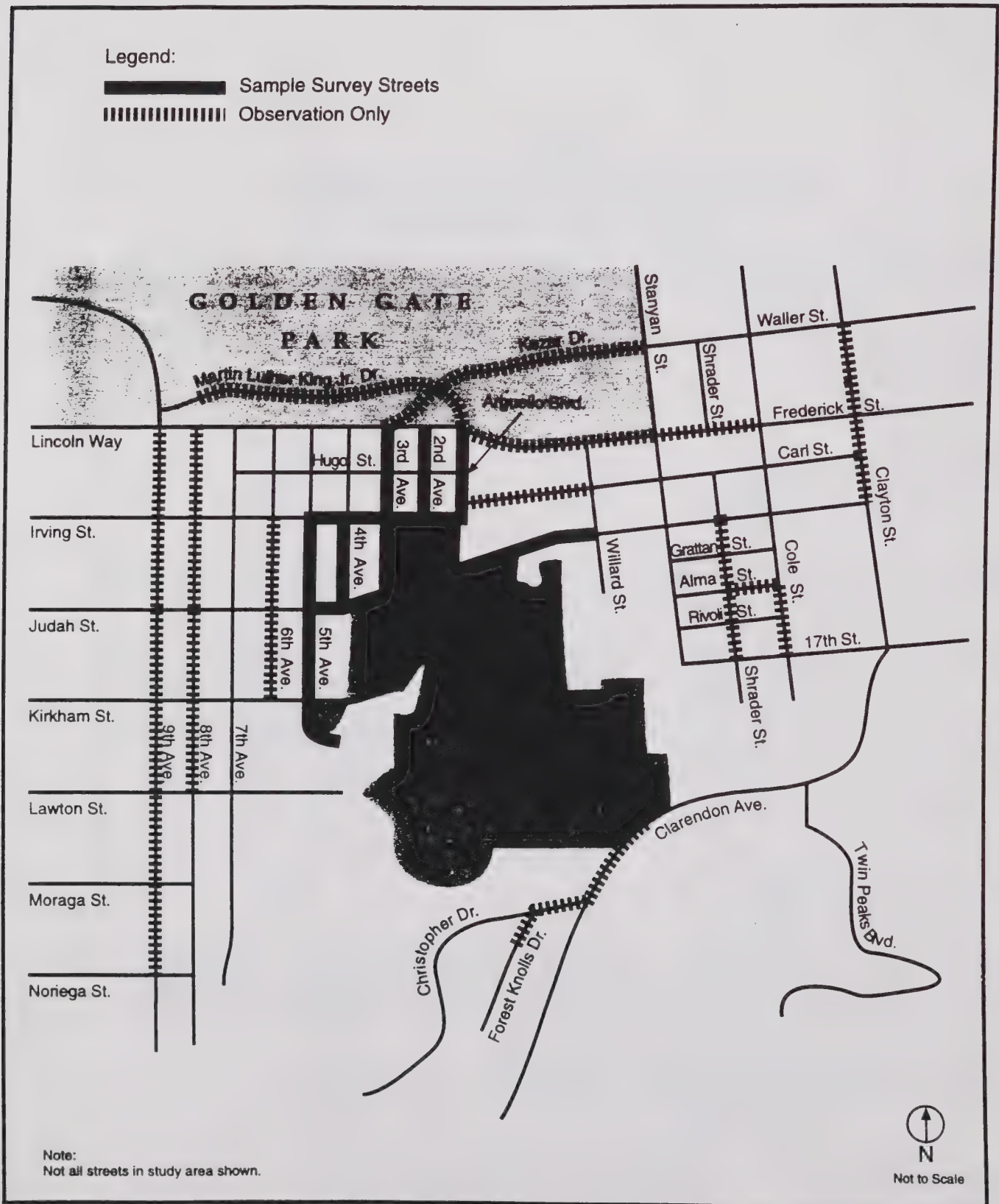


FIGURE 1

778-51-01

**UCSF PARNASSUS HEIGHTS
PARKING SURVEY
STUDY AREA**

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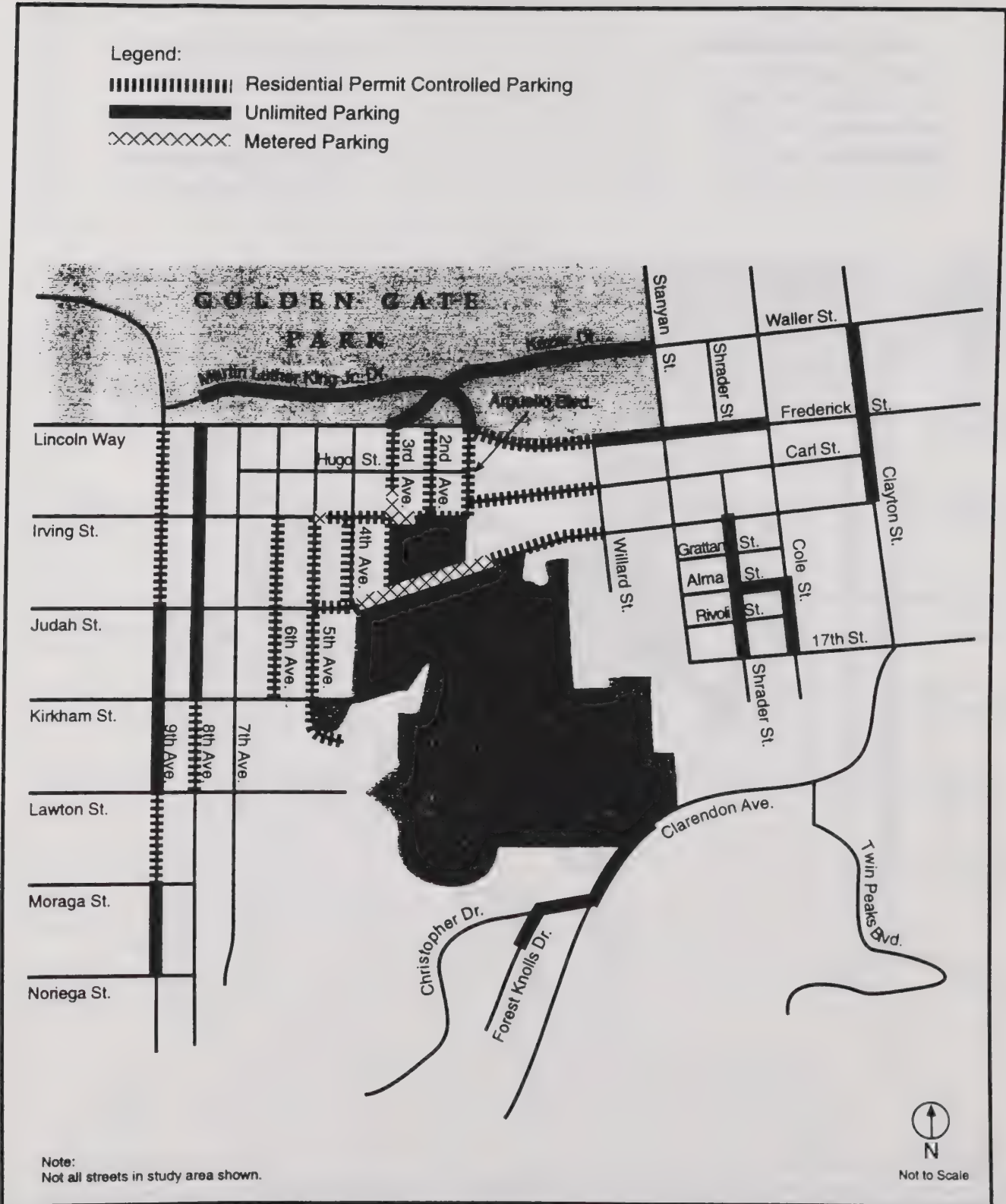


FIGURE 2

UCSF PARNASSUS HEIGHTS
PARKING SURVEY
PARKING INVENTORY BY TYPE

fp Fehr & Peers Associates, Inc.
Transportation Consultants

778-52-01

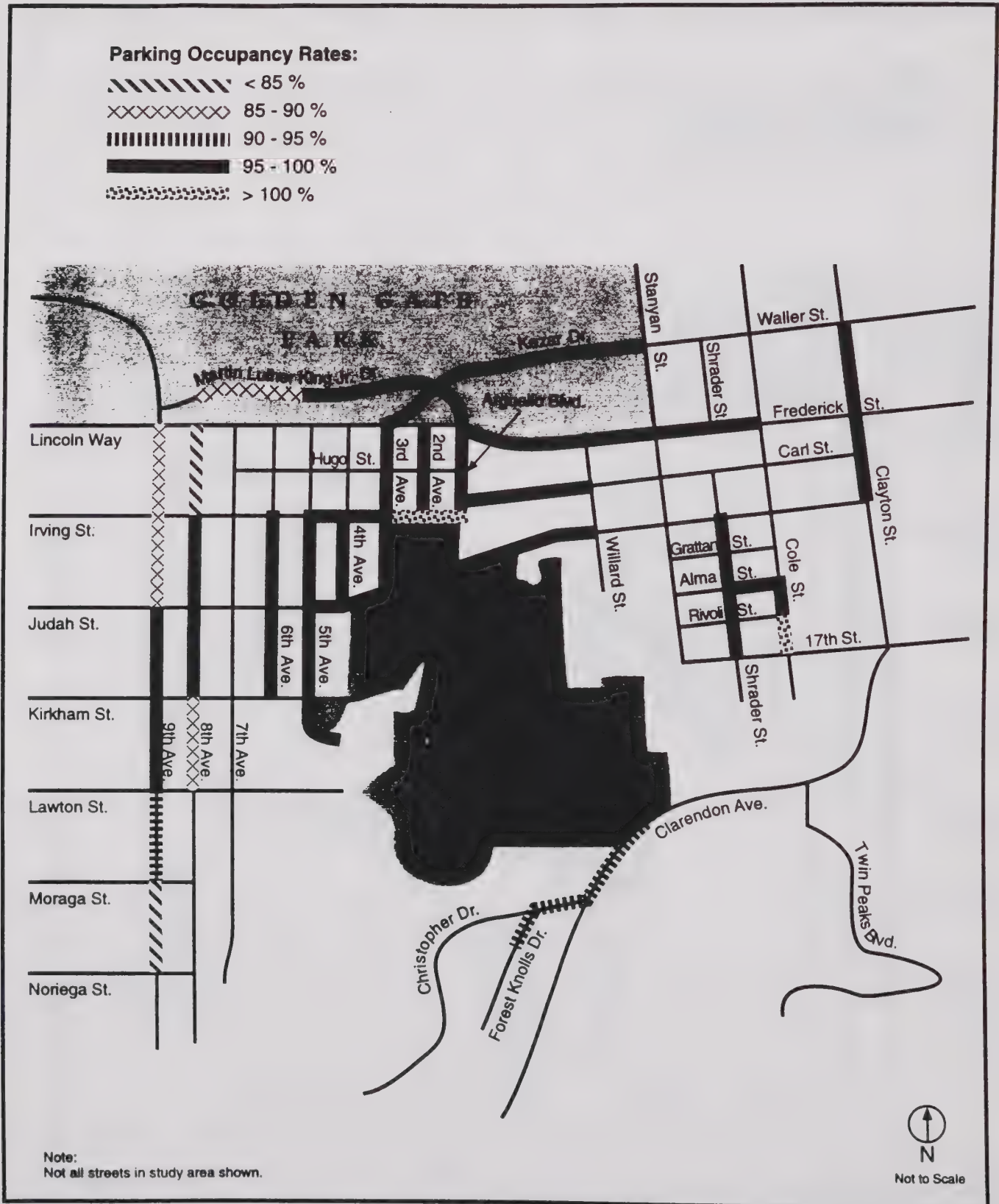


FIGURE 3

778-53-01

**UCSF PARNASSUS HEIGHTS
PARKING SURVEY
AM OCCUPANCY**

fp Fehr & Peers Associates, Inc.
Transportation Consultants

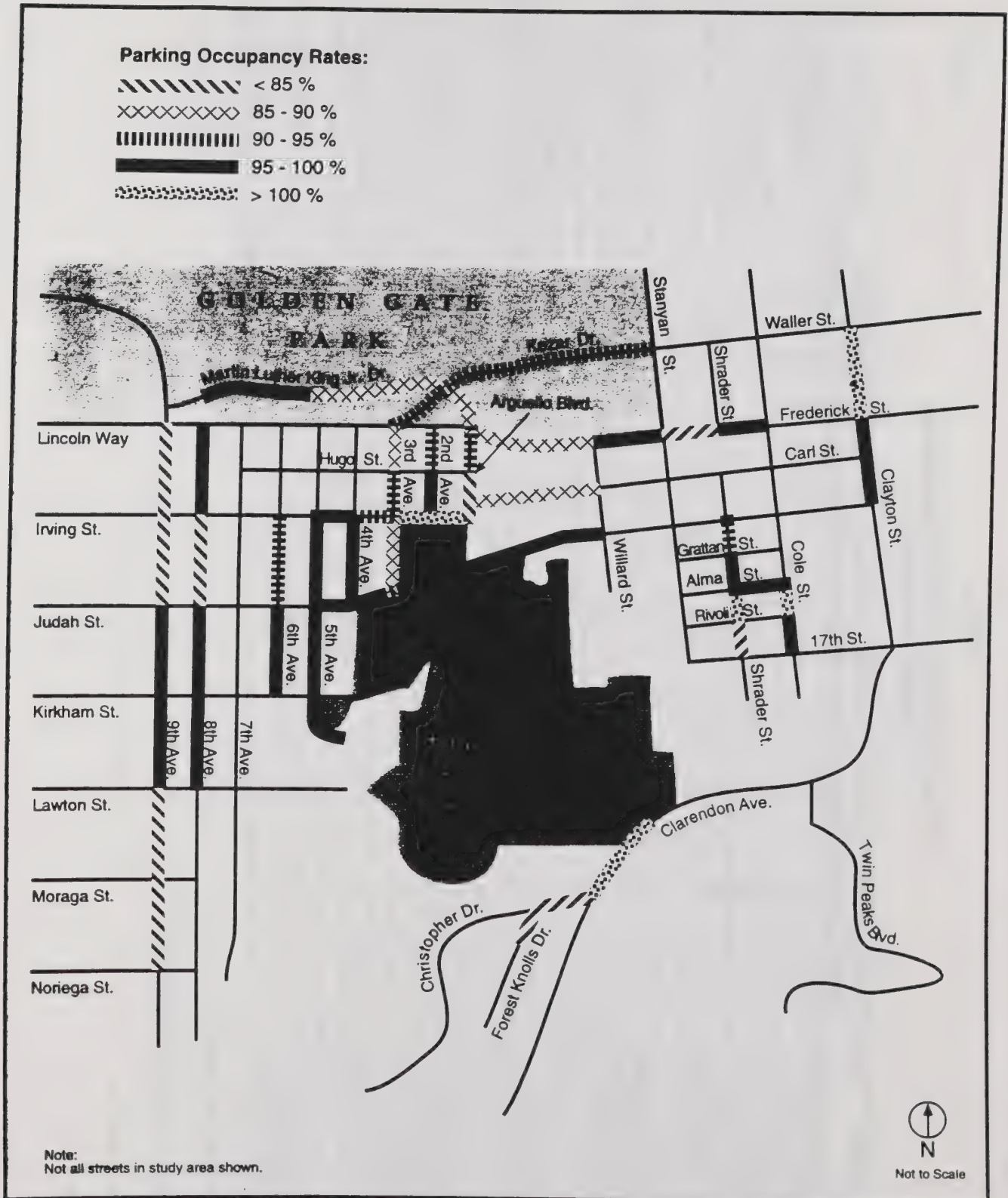


FIGURE 4

**UCSF PARNASSUS HEIGHTS
PARKING SURVEY
PM OCCUPANCY**

fp Fehr & Peers Associates, Inc.
Transportation Consultants

776-54-01

TABLE 1

PARNASSUS HEIGHTS PARKING OCCUPANCY - AM EXISTING
UCSF LRDP EIR - Parnassus Heights

Street	Total Spaces	Number Occupied	Percent Occupancy	Number Permit Spaces	Percent Res. Permit	On-Street Metered	Permit Controlled		Unlimited	Restrictions (1)
							2 Hour No Permit	Permit		
1.A. 9th between Noriega/Moraga	25	23	92%						23	8-10 T / 8-10 F
1.B. 9th between Moraga/Lawton	35	15	43%	35	26%		6	9		8-10 T / 8-10 F
1.C. 9th between Lawton/Kirkham	32	32	100%						32	8-10 T / 8-10 F
1.D. 9th between Kirkham/Judah	30	30	100%						30	8-10 M / 8-10 W
1.E. 9th between Judah/Irving	30	26	87%	30	0%		26			7-8 M / 7-8 T
1.F. 9th between Irving/Lincoln Way	30	24	80%	30	0%		24			7-8 M / 7-8 T
2.A. 8th between Lawton/Kirkham	27	24	89%	27	63%		7	17		8-10 M / 8-10 W
2.B. 8th between Kirkham/Judah	38	38	100%						38	8-10 M / 8-10 W
2.C. 8th between Judah/Irving	41	39	95%			8			31	8-10 M / 8-10 W
2.D. 8th between Irving/Lincoln Way	35	33	94%			3			30	8-10 M / 8-10 W
3.A. 6th between Kirkham/Judah	38	38	100%	38	68%		12	26		12-1 W / 12-2 M
3.B. 6th between Judah/Irving	43	43	100%	43	49%		22	21		12-1 W / 12-2 M
4.A. 5th between Kirkham/Judah	37	37	100%	37	81%		7	30		8-10 W / 12-2 M
4.B. 5th between Judah/Irving	50	50	100%	50	74%		13	37		8-10 W / 12-2 M
4.C. 5th between Kirkham/Mt. Sutro	13	13	100%	13	62%		5	8		8-10 W / 12-2 M
5.A. 4th between Parnassus/Irving	36	36	100%	36	50%		18	18		12-2 T
6.A. 3rd between Parnassus/Irving	54	54	100%	45	69%	10	13	31		10-12 T
6.B. 3rd between Irving/Hugo	29	29	100%	29	69%		9	20		11-1 F
6.C. 3rd between Hugo/Lincoln Way	23	23	100%	23	65%		8	15		11-1 F / 12-2 F

*Counts taken 1/10/96, 7:30 - 8:30 AM

(1) AM Street Cleaning restrictions : (SB / NB) or (WB / EB)

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TABLE 1

PARNASSUS HEIGHTS PARKING OCCUPANCY - AM EXISTING
UCSF LRDP EIR - Parnassus Heights

Street	Total Spaces	Number Occupied	Percent Occupancy	Number Permit Spaces	Percent Res. Permit	On-Street Metered	Permit Controlled		Unlimited	Restrictions
							2 Hour No Permit	Permit		
7.A. 2nd between Irving/Hugo	18	18	100%	18	50%		9	9		12-2 M / 12-2 W
7.B. 2nd between Hugo/Lincoln	23	23	100%	23	65%		8	15		12-2 M / 12-2 W
8.A. Arguello between Carl/Hugo	45	45	100%	45	33%		30	15		12-2 W / 12-2 M
8.B. Arguello between Hugo/Lincoln Way	39	39	100%	39	31%		27	12		12-2 W / 12-2 M
8.C. Arguello between Lincoln/Kezar	27	27	100%						27	12-2 W / 12-2 M
9.A. Clayton between Parnassus/Carl	20	20	100%						20	1st T 8-10 / 1st W 9-11
9.B. Clayton between Carl/Frederick	23	23	100%						23	1st T 8-10 / 1st W 9-11
9.C. Clayton between Frederick/Waller	56	54	96%						54	1st T 8-10 / 1st F 8-10
10.A. Shrader between 17th/Rivoli	16	16	100%						16	1st T 8-10 / 1st F 8-10
10.B. Shrader between Rivoli/Alma	16	16	100%						16	1st T 8-10 / 1st F 8-10
10.C. Shrader between Alma/Grattan	12	12	100%						12	1st T 8-10 / 1st W 9-11
10.D. Shrader between Grattan/Parnassus	18	18	100%						18	1st T 8-10 / 1st W 9-11
11.A. Cole between 17th/Rivoli	17	17	100%						17	1st T 8-10 / 1st W 9-11
11.B. Cole between Rivoli/Alma	16	20	125%						20	1st T 8-10 / 1st W 9-11
12.A. Clarendon between Christopher/Johnstone	40	15	38%						15	7-8 T / 10-2 F
12.B. Christopher (first 15 or so cars)	20	11	55%						11	
12.C. Forest Knolls	30	2	7%						2	

*Counts taken 1/10/96, 7:30 - 8:30 AM

(1) AM Street Cleaning restrictions : (SB / NB) or (WB / EB)

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TABLE 1

PARNASSUS HEIGHTS PARKING OCCUPANCY - AM EXISTING
UCSF LRDP EIR - Parnassus Heights

Street	Total Number of Spaces	Number Occupied	Percent Occupied	Number Permit Spaces	Percent Res. Permit	On-Street Metered	Permit Controlled		Unlimited	Restrictions
							2 Hour No Permit	Permit		
13.A. Parnassus between 5th/4th	26	26	100%	21	29%	5	15	6		6-7 T / 6-7 F
13.B. Parnassus between 4th/3rd	16	16	100%			16				6-7 T / 6-7 F (2)
13.C. Parnassus between 3rd/Arguello	15	15	100%			15				6-7 T / 6-7 F (2)
13.D. Parnassus between Arguello/Hillpoint	16	16	100%			16				6-7 T / 6-7 F
14.A. Irving between 5th/4th	19	19	100%	13	69%	6	4	9		7-8 T / 7-8 W
14.B. Irving between 4th/3rd	15	15	100%	15	53%		7	8		7-8 T / 7-8 W
14.C. Irving between 3rd/2nd	14	15	107%	8	38%	6	6	3		7-8 T / 7-8 W
14.D. Irving between 2nd/Arguello	12	14	117%	8	38%	6	5	3		7-8 T / 7-8 W
15.A. Carl between Arguello/Willard	61	59	97%	61	54%		26	33		7-8 T / 7-8 W
16.A. MLK between 7th/Bowling Green	157	148	94%						148	See (3)
16.B. MLK between Bowling Green/Kazar	45	45	100%						45	See (3)
17.A. Frederick between MLK/Willard	83	81	98%	83	24%		61	20		8-10 M / 8-10 T
17.B. Frederick between Willard/Stanyan	26	26	100%	26	23%		20	6		8-10 M / 8-10 T
17.C. Frederick between Stanyan/Shrader	38	38	100%						38	8-10 M / 8-10 T
17.D. Frederick between Shrader/Cole	25	25	100%						25	8-10 M / 8-10 T
18.A. Alma between Shrader/ Cole	34	34	100%						34	1st F 8-10 / 1st TH 9-11
19.A. Kazar between Lincoln/Waller	161	160	99%						160	6-8 F / 6-8 T
AM TOTALS	1845	1735	95%	796	46%	91	388	371	885	

*Counts taken 1/10/96, 7:30 - 8:30 AM

- (1) AM Street Cleaning restrictions : (SB / NB) or (WB / EB)
 (2) No Parking 4-6 PM, except Saturday and Sunday
 (3) No Parking 6-9 AM, except Saturday and Sunday

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TABLE 2

PARNASSUS HEIGHTS PARKING OCCUPANCY - PM EXISTING
UCSF LRDP EIR - Parnassus Heights

Street	Total Spaces	Number Occupied	Percent Occupancy	Number Permit Spaces	Percent Res. Permit	On-Street Metered	Permit Controlled		Unlimited	Restrictions
							2 Hour No Permit	Permit		
1.A. 9th between Noriega/Moraga	25	23	92%						23	8-10 T / 8-10 F
1.B. 9th between Moraga/Lawton	35	13	37%	35	26%		4	9		8-10 T / 8-10 F
1.C. 9th between Lawton/Kirkham	32	32	100%						32	8-10 T / 8-10 F
1.D. 9th between Kirkham/Judah	30	30	100%						30	8-10 M / 8-10 W
1.E. 9th between Judah/Irving	30	20	67%	30	0%		20			7-8 M / 7-8 T
1.F. 9th between Irving/Lincoln Way	30	22	73%	30	0%		22			7-8 M / 7-8 T
2.A. 8th between Lawton/Kirkham	27	27	100%	27	70%		8	19		8-10 M / 8-10 W
2.B. 8th between Kirkham/Judah	38	38	100%						38	8-10 M / 8-10 W
2.C. 8th between Judah/Irving	41	37	90%			6			31	8-10 M / 8-10 W
2.D. 8th between Irving/Lincoln Way	35	34	97%			4			30	8-10 M / 8-10 W
3.A. 6th between Kirkham/Judah	38	38	100%	38	47%		20	18		12-1 W / 12-2 M
3.B. 6th between Judah/Irving	43	34	79%	43	33%		20	14		12-1 W / 12-2 M
4.A. 5th between Kirkham/Judah	37	37	100%	37	62%		14	23		8-10 W / 12-2 M
4.B. 5th between Judah/Irving	50	50	100%	50	78%		11	39		8-10 W / 12-2 M
4.C. 5th between Kirkham/Mt. Sutro	13	13	100%	13	31%		9	4		8-10 W / 12-2 M
5.A. 4th between Parnassus/Irving	36	35	97%	36	25%		26	9		12-2 T
6.A. 3rd between Parnassus/Irving	54	48	89%	45	60%	10	11	27		10-12 T
6.B. 3rd between Irving/Hugo	29	22	76%	29	38%		11	11		11-1 F
6.C. 3rd between Hugo/Lincoln Way	23	20	87%	23	48%		9	11		11-1 F / 12-2 F

*Counts taken 1/10/96, 2:00 - 3:00 PM

(1) AM Street Cleaning restrictions : (SB / NB) or (WB / EB)

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2/12/96

TABLE 2

PARNASSUS HEIGHTS PARKING OCCUPANCY - PM EXISTING
UCSF LRDP EIR - Parnassus Heights

Street	Total Spaces	Number Occupied	Percent Occupancy	Number Permit Spaces	Percent Res. Permit	On-Street Metered	Permit Controlled		Unlimited	Restrictions
							2 Hour No Permit	Permit		
7.A. 2nd between Irving/Hugo	18	18	100%	18	50%		9	9		12-2 M / 12-2 W
7.B. 2nd between Hugo/Lincoln	23	19	83%	23	26%		13	6		12-2 M / 12-2 W
8.A. Arguello between Carl/Hugo	45	42	93%	45	29%		29	13		12-2 W / 12-2 M
8.B. Arguello between Hugo/Lincoln Way	39	13	33%	39	8%		10	3		12-2 W / 12-2 M
8.C. Arguello between Lincoln/Kezar	27	24	89%						24	12-2 W / 12-2 M
9.A. Clayton between Parnassus/Carl	20	19	95%						19	1st T 8-10 / 1st W 9-11
9.B. Clayton between Carl/Frederick	23	23	100%						23	1st T 8-10 / 1st W 9-11
9.C. Clayton between Frederick/Waller	56	57	102%						57	1st T 8-10 / 1st F 8-10
10.A. Shrader between 17th/Rivoli	16	13	81%						13	1st T 8-10 / 1st F 8-10
10.B. Shrader between Rivoli/Alma	16	18	113%						18	1st T 8-10 / 1st F 8-10
10.C. Shrader between Alma/Grattan	12	12	100%						12	1st T 8-10 / 1st W 9-11
10.D. Shrader between Grattan/Parnassus	18	17	94%						17	1st T 8-10 / 1st W 9-11
11.A. Cole between 17th/Rivoli	17	17	100%						17	1st T 8-10 / 1st W 9-11
11.B. Cole between Rivoli/Alma	16	17	106%						17	1st T 8-10 / 1st W 9-11
12.A. Clarendon between Christopher/Johnstone	40	34	85%						34	7-8 T / 10-2 F
12.B. Christopher (first 15 or so cars)	20	11	55%						11	
12.C. Forest Knolls	30	3	10%						3	

*Counts taken 1/10/96, 2:00 - 3:00 PM

(1) AM Street Cleaning restrictions : (SB / NB) or (WB / EB)

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TABLE 2

Page 3 of 3

PARNASSUS HEIGHTS PARKING OCCUPANCY - PM EXISTING
UCSF LRDP EIR - Parnassus Heights

Street	Total Number of Spaces	Number Occupied	Percent Occupied	Number Permit Spaces	Percent Res. Permit	On-Street Metered	Permit Controlled		Unlimited	Restrictions
							2 Hour No Permit	Permit		
13.A. Parnassus between 5th/4th	26	26	100%	21	10%	5	19	2		6-7 T / 6-7 F
13.B. Parnassus between 4th/3rd	16	16	100%			16				6-7 T / 6-7 F (2)
13.C. Parnassus between 3rd/Arguello	15	14	93%			14				6-7 T / 6-7 F (2)
13.D. Parnassus between Arguello/Hillpoint	16	16	100%			16				6-7 T / 6-7 F
14.A. Irving between 5th/4th	19	19	100%	13	46%	6	7	6		7-8 T / 7-8 W
14.B. Irving between 4th/3rd	15	14	93%	15	47%		7	7		7-8 T / 7-8 W
14.C. Irving between 3rd/2nd	14	14	100%	8	38%	6	5	3		7-8 T / 7-8 W
14.D. Irving between 2nd/Arguello	12	12	100%	8	38%	6	3	3		7-8 T / 7-8 W
15.A. Carl between Arguello/Willard	61	53	87%	61	41%		28	25		7-8 T / 7-8 W
16.A. MLK between 7th/Bowling Green	157	155	99%						155	See (3)
16.B. MLK between Bowling Green/Kezar	45	39	87%						39	See (3)
17.A. Frederick between MLK/Willard	83	72	87%	83	23%		53	19		8-10 M / 8-10 T
17.B. Frederick between Willard/Stanyan	26	25	96%	26	35%		16	9		8-10 M / 8-10 T
17.C. Frederick between Stanyan/Shrader	38	27	71%						27	8-10 M / 8-10 T
17.D. Frederick between Shrader/Cole	25	25	100%						25	8-10 M / 8-10 T
18.A. Alma between Shrader/ Cole	34	34	100%						34	1st F 8-10 / 1st TH 9-11
19.A. Kezar between Lincoln/Waller	161	148	92%						148	6-8 F / 6-8 T
PM TOTALS	1845	1639	90%	796	34%	89	384	289	881	

*Counts taken 1/10/96, 2:00 - 3:00 PM

- (1) AM Street Cleaning restrictions : (SB / NB) or (WB / EB)
 (2) No Parking 4-6 PM, except Saturday and Sunday
 (3) No Parking 6-9 AM, except Saturday and Sunday

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2/12/96



Fehr & Peers Associates, Inc.
Transportation Consultants

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Suite 301
Lafayette, CA 94549
510 284-3200
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MEMORANDUM

Date: March 1, 1996
To: Michael Rice
From: Matthew Ridgway
Subject: Parnassus Heights 1996 LRDP Intersection Impact Analysis

Fehr & Peers Associates prepared Levels of Service (LOS) analysis using the 1994 HCS Methodology for signalized intersections and the 1985 HCS Methodology for unsignalized intersections based on intersection turning movements for the existing and future conditions at the following ten intersections:

- Fell Street / Stanyan Street
- Kezar Drive / Stanyan Street
- Oak Street / Stanyan Street
- Frederick Street / Stanyan Street
- 3rd Avenue / Irving Street
- 3rd Avenue / Parnassus Avenue
- 5th Avenue / Parnassus Avenue
- 7th Avenue / Judah Street
- 7th Avenue / Irving Street
- 7th Avenue / Lincoln Way

Intersection turning volumes were conducted on September 20 and September 21, 1994 for the AM and PM peak periods. According to the existing traffic counts, the AM peak period generally occurred between 7:45 and 8:45. At three intersection, 5th/Judah, 7th/Judah, and 7th/Irving, the peak occurred between 7:30 and 8:30 and Stanyan/Fell had the highest volumes between 8:00 and 9:00. The PM peak period generally occurred between 5:00 and 6:00. At 3rd/Irving, 5th/Parnassus, and 7th/Irving the peak occurred between 4:45 and 5:45 and 3rd/Parnassus experienced the highest volumes between 4:30 and 5:30.

Tables 1, 2, and 3 show the AM and PM peak hour LOS, volume-to-capacity ratios for signalized intersections, and the Reserve Capacity for unsignalized intersections. The same data, as well as traffic volumes, are presented in Figures 1, 2, and 3 for existing conditions, year 2010 without project, and year 2010 with project, respectively. Two intersections, Fell/Stanyan and Oak/Stanyan, currently function at LOS F in the morning peak. Four intersections, Fell/Stanyan, Kezar/Stanyan, 7th/Judah, and 7th/Lincoln, operate at LOS F during the evening rush hour.



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Parnassus Heights 1996 LRDP Intersection Impact Analysis

Page 2

Intersection LOS in the year 2010 were forecasted assuming a linear growth factor of 1 percent per year for a total of 15 percent. The 15 percent growth rate results in considerable degradation of existing service levels. The addition of the Long Range Development Plan to 2010 traffic results in further degradation of the volume-to-capacity ratios and reserve capacities but no LOS changes. The volume-to-capacity degradations are summarized in Table 4.

Fehr & Peers also conducted transportation impact analysis focusing on the surrounding corridors for the UCSF EIR. The corridor analysis and intersection analysis were compared and found to be generally consistent. The corridor analysis is more conservative than intersection analysis, so corridor volume-to-capacity ratios and levels of service may be slightly worse than intersection analysis, but represent worst-case conditions. For example, the existing condition for Parnassus Avenue east of 5th is LOS D for the AM and PM peak hours. The intersection operations for this street at 3rd/Irving, 3rd/Parnassus, and 5th/Parnassus were LOS B, C, and D, respectively. The LOS on Parnassus Avenue degraded to LOS E at 2010 with and without project conditions, as did the LOS at the intersections.

Table 1

Intersection Level of Service - Existing Conditions

UCSF LRDP EIR - Parnassus Heights

Intersection	AM Peak Hour			PM Peak Hour		
	LOS	V/C	RC (Worst Movement)	LOS	V/C	RC (Worst Movement)
Fell Street/Stanyan Street	F		-76(WBL)	F		-67(WBL)
Kezar Drive/Stanyan Street	E	0.93		F	1.01	
Oak Street/Stanyan Street	F		-50(SBL)	E		30(WBL)
Frederick Street/Stanyan Street	D	0.82		C	0.74	
3rd Avenue/Irving Street	B		308(SBL)	C		241(SBL)
3rd Avenue/Parnassus Avenue	C		209(SBL)	C		278(SBL)
5th Avenue/Parnassus Avenue	D		110(SBL)	D		143(SBL)
7th Avenue/Judah Street	C	0.76		F	1.09	
7th Avenue/Irving Street	A	0.57		A	0.47	
7th Avenue/Lincoln Way	E	0.94		F	1.25	

NOTE:

RC - Reserve Capacity

WBL - Westbound Left

SBL - Southbound Left

NBL - Northbound Left

Table 2

Intersection Level of Service - 2010 Without Project Conditions

UCSF LRDP EIR - Parnassus Heights

Intersection	AM Peak Hour			PM Peak Hour		
	LOS	V/C	RC (Worst Movement)	LOS	V/C	RC (Worst Movement)
Fell Street/Stanyan Street	F		-98(WBL)	F		-88(WBL)
Kezar Drive/Stanyan Street	F	1.07		F	1.16	
Oak Street/Stanyan Street	F		-157(SBL)	E		7(WBL)
Frederick Street/Stanyan Street	E	0.94		D	0.85	
3rd Avenue/Irving Street	C		252(SBL)	D		187(SBL)
3rd Avenue/Parnassus Avenue	D		160(SBL)	C		228(SBL)
5th Avenue/Parnassus Avenue	E		64(SBL)	E		75(SBL)
7th Avenue/Judah Street	D	0.86		F	1.25	
7th Avenue/Irving Street	B	0.66		A	0.55	
7th Avenue/Lincoln Way	F	1.07		F	1.44	

NOTE:

RC - Reserve Capacity

WBL - Westbound Left

SBL - Southbound Left

NBL - Northbound Left

Table 3
Intersection Level of Service - 2010 With Project Conditions
UCSF LRDP EIR- Parnassus Heights

Intersection	AM Peak Hour			PM Peak Hour		
	LOS	V/C	RC (Worst Movement)	LOS	V/C	RC (Worst Movement)
Fell Street/Stanyan Street	F		-98(WBL)	F		-88(WBL)
Kezar Drive/Stanyan Street	F	1.07		F	1.16	
Oak Street/Stanyan Street	F		-157(SBL)	E		7(WBL)
Frederick Street/Stanyan Street	E	0.94		D	0.85	
3rd Avenue/Irving Street	C		257(SBL)	D		197(SBL)
3rd Avenue/Parnassus Avenue	D		160(SBL)	C		228(SBL)
5th Avenue/Parnassus Avenue	E		59(SBL)	E		26(NBL)
7th Avenue/Judah Street	D	0.86		F	1.25	
7th Avenue/Irving Street	B	0.66		A	0.55	
7th Avenue/Lincoln Way	F	1.07		F	1.44	

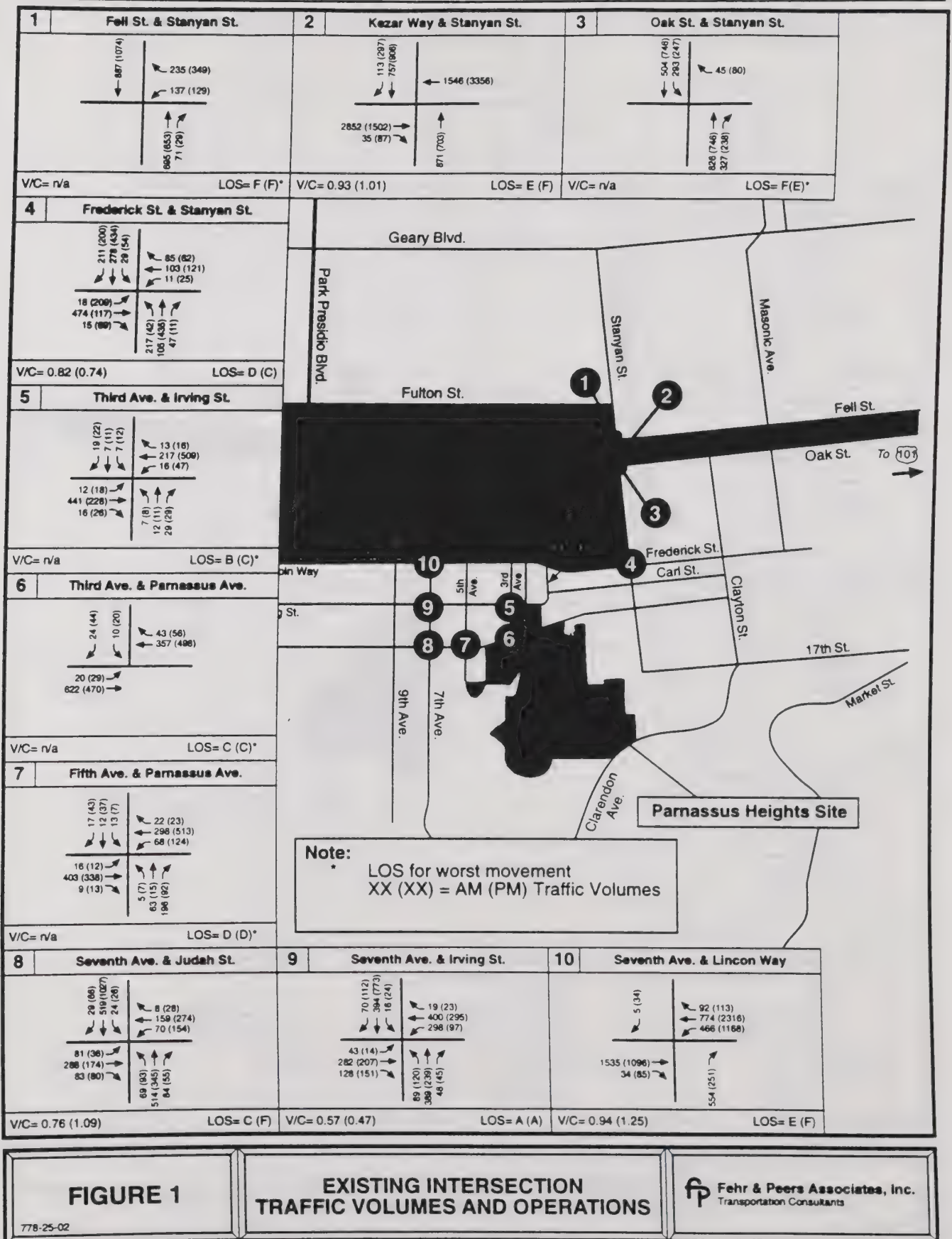
NOTE:

RC - Reserve Capacity

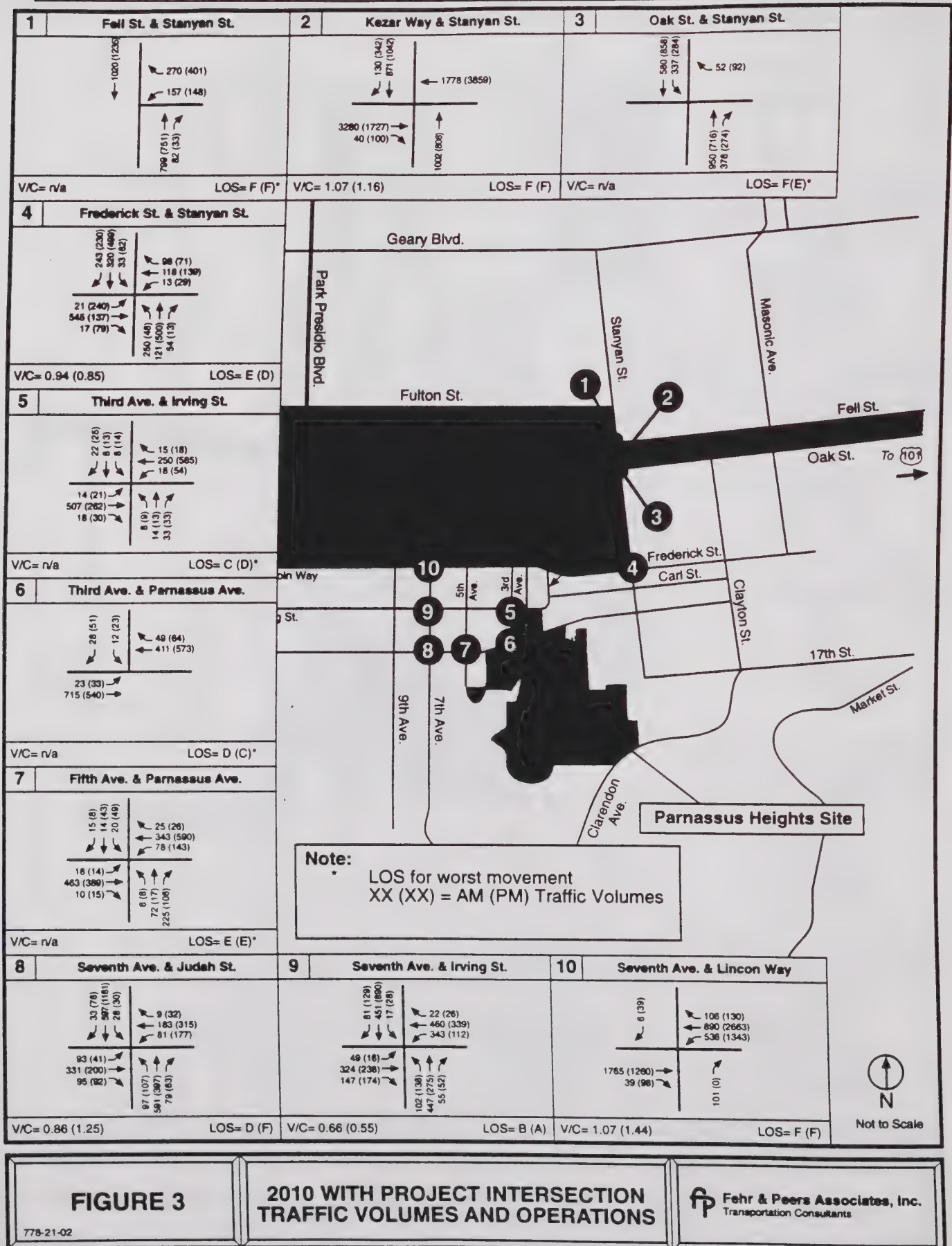
WBL - Westbound Left

SBL - Southbound Left

NBL - Northbound Left



Appendix 3, Traffic, Circulation, and Parking



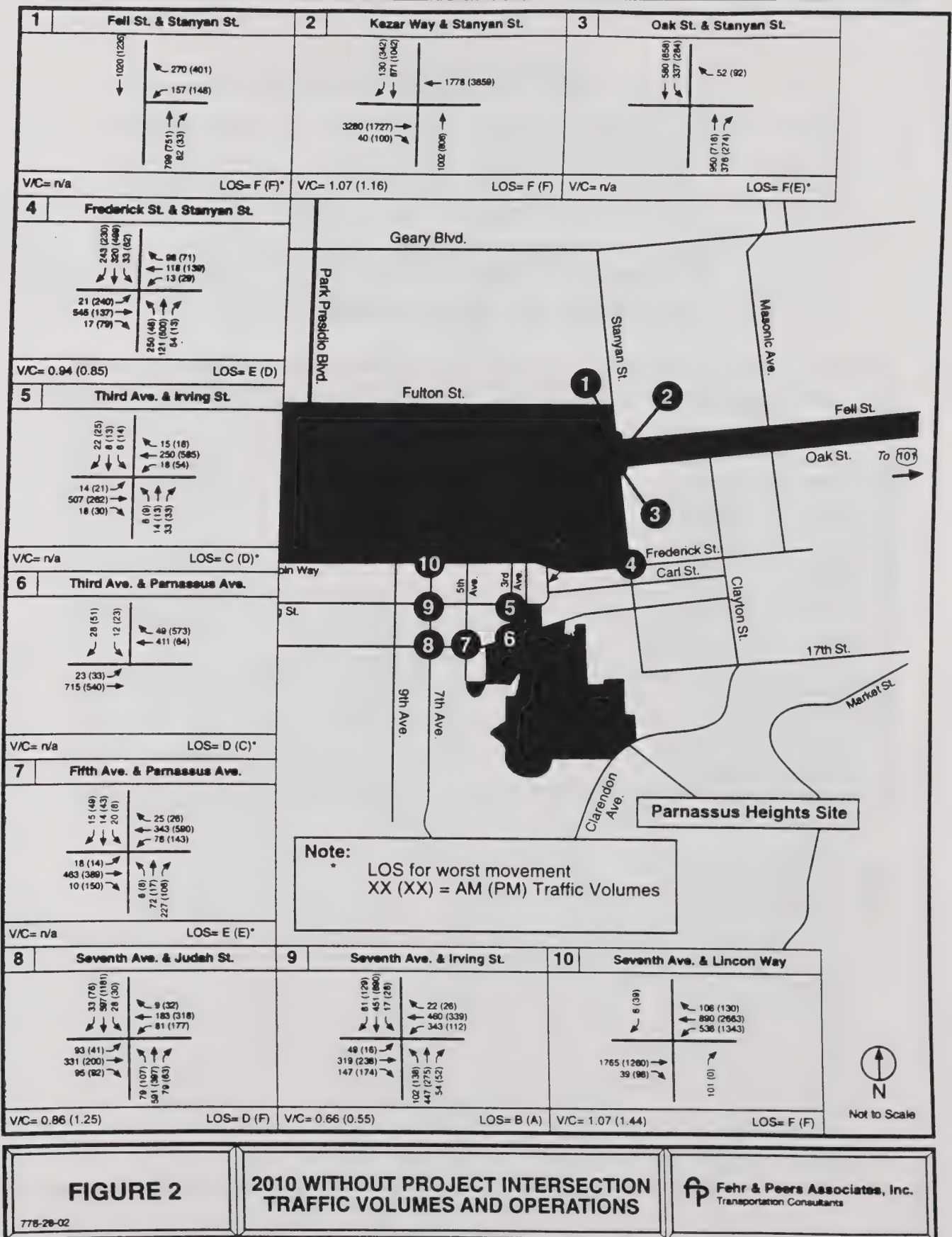


Table 4
Summary of Change in Volume-to Capacity or
Reserve Capacity With and With Project
UCSF LRDP EIR - Parnassus Heights

Intersection	Change from Existing to 2010 w/o Project Conditions		Change from 2010 w/o Project to 2010 with Project	
	AM	PM	AM	PM
Fell Street / Stanyan Street	-22 (WBL)	-21(WBL)		
Kezar Drive / Stanyan Street	.14	.15		
Oak Street / Stanyan Street	-107 (SBL)	-23(WBL)		
Frederick Street / Stanyan Street	.12	.11		
3rd Avenue / Irving Street	-56 (SBL)	-54(SBL)	-5(SBL)	10(SBL)
3rd Avenue / Parnassus Avenue	-49 (SBL)	-50(SBL)		
5th Avenue / Parnassus Avenue	-46 (SBL)	-68(SBL)	-5(SBL)	-49(NBL)
7th Avenue / Judah Street	.10	.16		
7th Avenue / Irving Street	.09	.08		
7th Avenue / Lincoln Way	.13	.19		

NOTE:

WBL = Westbound Left
SBL = Southbound Left
NBL = Northbound Left

Table **A-3-1**
LEVEL OF SERVICE CRITERIA
VOLUME-TO-CAPACITY THRESHOLDS FOR FREEWAYS

Area Type	Volume-To-Capacity Ratio				
	A	B	C	D	E
500,000+ population or within 5 miles of CBD	0.35	0.54	0.77	0.93	1.00
50,000 - 500,000 population and not within 5 miles of CBD	0.35	0.54	0.77	0.93	1.00

Table **A-3-2**
LEVEL OF SERVICE CRITERIA
VOLUME-TO-CAPACITY THRESHOLDS FOR ARTERIALS (URBANIZED AREA)

Signalized Intersections Per Mile	CBD	Lanes	Volume-To-Capacity Ratio				
			A	B	C	D	E
0 - 0.75	No	2	0.79	0.86	0.90	0.95	1.00
		4	0.81	0.87	0.90	0.95	1.00
		6	0.82	0.87	0.90	0.95	1.00
0.76 - 1.5	No	2	0.56	0.85	0.90	0.95	1.00
		4	0.59	0.87	0.91	0.96	1.00
		6	0.60	0.88	0.91	0.96	1.00
1.6 - 2.5	No	2	-	0.65	0.86	0.94	1.00
		4	-	0.68	0.88	0.95	1.00
		6	-	0.70	0.89	0.95	1.00
2.6 - 3.5	No	2	-	-	0.60	0.89	1.00
		4	-	-	0.61	0.91	1.00
		6	-	-	0.61	0.92	1.00
3.6 - 4.5	No	2	-	-	-	0.84	1.00
		4	-	-	-	0.82	1.00
		6	-	-	-	0.81	1.00
4.6+	No	2	-	-	-	0.71	1.00
		4	-	-	-	0.71	1.00
		6	-	-	-	0.71	1.00
4.6+	Yes	2	-	-	-	0.85	1.00
		4	-	-	-	0.87	1.00
		6	-	-	-	0.88	1.00

Source: Florida Department of Transportation, January 1989.

Table A-3-3
LEVEL OF SERVICE CRITERIA
VOLUME-TO-CAPACITY THRESHOLDS FOR ONE-WAY ARTERIALS

<u>Area Type</u>	<u>Signalized Intersections Per Mile</u>	<u>Lanes</u>	<u>Volume-To-Capacity Ratio</u>				
			<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Non CBD	Less than 3.6	2	-	0.54	0.82	0.94	1.00
		3	-	0.55	0.83	0.94	1.00
		4	-	0.55	0.85	0.94	1.00
	3.6 - 4.5	2	-	-	0.76	0.92	1.00
		3	-	-	0.76	0.93	1.00
		4	-	-	0.76	0.94	1.00
	4.5+	2	-	-	0.62	0.88	1.00
		3	-	-	0.62	0.89	1.00
		4	-	-	0.62	0.90	1.00
CBD	4.5+	2	-	-	0.73	0.94	1.00
		3	-	-	0.74	0.95	1.00
		4	-	-	0.74	0.95	1.00

Table A-3-4
LEVEL OF SERVICE CRITERIA
VOLUME-TO-CAPACITY THRESHOLDS FOR LOCAL STREETS/COLLECTORS

<u>Area Type</u>	<u>Lanes</u>	<u>Volume-To-Capacity Ratio</u>				
		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Urban (5,000+ population)	2	-	-	0.60	0.90	1.00
	4	-	-	0.61	0.92	1.00
	10	-	-	0.62	0.93	1.00
Rural (<5,000 population)	2	-	-	0.56	0.88	1.00

Source: Florida Department of Transportation, January 1989.

Table A-3-5
LEVEL OF SERVICE CRITERIA
VOLUME-TO-CAPACITY THRESHOLDS FOR RURAL HIGHWAYS

<u>Posted Speed</u>	<u>Lanes</u>	<u>Volume-To-Capacity Ratio</u>				
		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
45 mph	2	-	0.12	0.32	0.53	1.00
55 mph	2	0.12	0.24	0.39	0.62	1.00
	4	0.33	0.48	0.65	0.80	1.00
	6	0.33	0.48	0.65	0.80	1.00

Table A-3-6
LEVEL OF SERVICE CRITERIA
VOLUME-TO-CAPACITY THRESHOLDS FOR ARTERIALS (RURAL AREA)

<u>Signalized Intersections Per Mile</u>	<u>Divided</u>	<u>Lanes</u>	<u>Volume-To-Capacity Ratio</u>				
			<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
0 - 0.75	No	2	-	-	0.50	0.75	1.00
	No	4	-	-	0.83	0.90	1.00
	Yes	4	-	-	0.83	0.90	1.00
	Yes	6	-	-	0.83	0.90	1.00
0.76 - 1.5	No	2	-	-	0.50	0.75	1.00
	No	4	-	-	0.83	0.92	1.00
	Yes	4	-	-	0.84	0.92	1.00
	Yes	6	-	-	0.84	0.92	1.00
1.6+	No	2	-	-	-	0.76	1.00
	No	4	-	-	-	0.90	1.00
	Yes	4	-	-	-	0.90	1.00
	Yes	6	-	-	-	0.91	1.00

Source: Florida Department of Transportation, January 1989.

**TABLE A-3-7: PARNASSUS HEIGHTS
CORRIDOR LEVEL OF SERVICE EXISTING CONDITIONS**

Roadway Segment	Facility Type	ADT		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic ¹	Level of Service	AM Peak-Hour Volume ¹	AM Peak-Hour Capacity ²	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume ¹	PM Peak-Hour Capacity ²	Volume/Capacity Ratio	Level of Service
Lincoln Way east of 19th Avenue	4-Lane Arterial	40,411	F	2,965	2,988	0.99	E	3,219	2,988	1.08	F
Irving Street east of 19th Avenue	2-Lane Collector	8,691	D	767	1,161	0.66	D	755	1,161	0.65	D
Judah Street east of 19th Avenue	2-Lane Arterial	9,955	D	842	1,386	0.61	D	856	1,386	0.62	D
7th Avenue south of Lincoln Way	2-Lane Arterial	16,355	E	1,271	1,386	0.92	E	1,297	1,386	0.94	E
3rd Avenue south of Lincoln Way	2-Lane Collector	1,433	C	76	1,161	0.07	C	129	1,161	0.11	C
Parnassus Avenue east of 5th Avenue	2-Lane Arterial	14,117	D	1,187	1,386	0.86	D	1,160	1,386	0.84	D
Frederick Street west of Masonic Avenue	2-Lane Collector	12,011	E	1,081	1,161	0.93	E	547	1,161	0.47	C
Stanyan Street south of Geary Blvd.	4-Lane Arterial	20,710	D	1,663	2,889	0.58	D	1,696	2,889	0.59	D
Fell Street east of Stanyan Street	4-Lane Arterial One-Way	42,600	F	1,918	3,231	0.59	C	3,834	3,231	1.19	F
Oak Street west of Masonic Avenue	4-Lane Arterial One-Way	46,664	E	2,406	3,231	0.74	D	2,944	3,231	0.91	E
Kezar Drive west of Waller Street	4-Lane Arterial	49,146	F	3,618	2,988	1.21	F	4,188	2,988	1.40	F

NOTES:

1. Volumes were obtained from local jurisdictions or by using Florida DOT design hour factors and peak hour link volumes.
2. Peak-hour capacities were derived from standard Florida DOT capacities, applying local adjustment factors for design hour and directional split variations.

**TABLE A-3-8: PARNASSUS HEIGHTS
CORRIDOR LEVEL OF SERVICE YEAR 2010 CONDITIONS WITHOUT PROJECT**

Roadway Segment	Facility Type	ADT		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic ¹	Level of Service	AM Peak-Hour Volume ¹	Directional Split Factor	AM Peak-Hour Capacity ²	Level of Service	PM Peak-Hour Volume ¹	PM Peak-Hour Capacity ²	Volume/Capacity Ratio	Level of Service
Lincoln Way east of 19th Avenue	4-Lane Arterial	40,229	F	2,939	0.57	2,988	E	3,201	2,988	1.07	F
Irving Street east of 19th Avenue	2-Lane Collector	8,639	D	760	0.57	1,161	D	749	1,161	0.65	D
Judah Street east of 19th Avenue	2-Lane Arterial	9,885	D	838	0.57	1,386	D	849	1,386	0.61	D
7th Avenue south of Lincoln Way	2-Lane Arterial	16,282	F	1,422	0.57	1,386	F	1,289	1,386	0.93	E
3rd Avenue south of Lincoln Way	2-Lane Collector	1,404	C	73	0.57	1,161	C	125	1,161	0.11	C
Parnassus Avenue east of 5th Avenue	2-Lane Arterial	14,024	D	1,175	0.57	1,386	D	1,150	1,386	0.83	D
Frederick Street west of Masonic Avenue	2-Lane Collector	12,003	E	1,080	0.57	1,161	E	546	1,161	0.47	C
Stanyan Street south of Geary Blvd.	4-Lane Arterial	20,585	D	1,647	0.57	2,889	D	1,682	2,889	0.58	D
Fell Street east of Stanyan Street	4-Lane Arterial One-Way	42,550	F	1,907	1.00	3,231	C	3,830	3,231	1.19	F
Oak Street west of Masonic Avenue	4-Lane Arterial One-Way	46,608	E	2,404	1.00	3,231	D	2,937	3,231	0.91	E
Kezar Drive west of Waller Street	4-Lane Arterial	48,986	F	3,596	0.57	2,988	F	4,170	2,988	1.40	F

NOTES:

1. Volumes were obtained from local jurisdictions or by using Florida DOT design hour factors and peak hour link volumes.
2. Peak-hour capacities were derived from standard Florida DOT capacities, applying local adjustment factors for design hour and directional split variations.

**TABLE A-3-9: PARNASSUS HEIGHTS
CORRIDOR LEVEL OF SERVICE YEAR 2010 CONDITIONS WITH PROJECT**

Roadway Segment	Facility Type	ADT		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic ¹	Level of Service	AM Peak-Hour Volume ¹	AM Peak-Hour Capacity ²	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume ¹	PM Peak-Hour Capacity ²	Volume/Capacity Ratio	Level of Service
Lincoln Way east of 19th Avenue	4-Lane Arterial	46,473	F	3,410	2,988	1.14	F	3,702	2,988	1.24	F
Irving Street east of 19th Avenue	2-Lane Collector	9,995	D	882	1,161	0.76	D	868	1,161	0.75	D
Judah Street east of 19th Avenue	2-Lane Arterial	11,448	D	968	1,386	0.70	D	993	1,386	0.72	D
7th Avenue south of Lincoln Way	2-Lane Arterial	18,808	F	1,647	1,386	1.19	F	1,492	1,386	1.08	F
3rd Avenue south of Lincoln Way	2-Lane Collector	1,648	C	87	1,161	0.08	C	148	1,161	0.13	C
Parnassus Avenue east of 5th Avenue	2-Lane Arterial	16,235	E	1,365	1,386	0.98	E	1,334	1,386	0.96	E
Frederick Street west of Masonic Avenue	2-Lane Collector	13,813	F	1,243	1,161	1.07	F	629	1,161	0.54	C
Sanyan Street south of Geary Blvd.	4-Lane Arterial	23,817	D	1,912	2,889	0.66	D	1,950	2,889	0.68	D
Fell Street east of Sanyan Street	4-Lane Arterial One-Way	48,990	F	2,206	3,231	0.68	D	4,409	3,231	1.36	F
Oak Street west of Masonic Avenue	4-Lane Arterial One-Way	53,664	F	2,767	3,231	0.86	D	3,386	3,231	1.05	F
Kezar Drive west of Waller Street	4-Lane Arterial	56,518	F	4,161	2,988	1.39	F	4,816	2,988	1.61	F

NOTES:

1. Volumes were obtained from local jurisdictions or by using Florida DOT design hour factors and peak hour link volumes.
2. Peak-hour capacities were derived from standard Florida DOT capacities, applying local adjustment factors for design hour and directional split variations.

Table A-3-10
BRISBANE BAYLANDS/EXECUTIVE PARK: CORRIDOR LEVEL OF SERVICE EXISTING CONDITIONS

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic (1)	Level of Service	AM Peak-Hour Volume	AM Peak-Hour Capacity (2)	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume	PM Peak-Hour Capacity (2)	Volume/Capacity Ratio	Level of Service
US 101 south of Cesar Chavez Avenue	8-Lane Freeway	285,000	E/F	16,700	16,700	1.00	E/F	16,700	16,700	1.00	E/F
US 101 south of Candlestick Park Connections	8-Lane Freeway	175,000	E/F	14,300	15,920	0.90	D	14,300	14,300	1.00	E/F
Third Street north of Thomas Avenue	6-Lane Arterial	31,662	D	2,901	4,740	0.61	D	2,898	5,810	0.50	D
Bayshore Blvd. south of Sunnydale Avenue	6-Lane Arterial	22,500	D	1,198	5,320	0.23	D	1,394	5,660	0.25	D
Bayshore Blvd. north of Guadalupe Canyon Pkwy.	4-Lane Arterial	16,000	D	1,323	3,660	0.36	D	1,442	3,280	0.44	D
Jamestown Avenue	4-Lane Arterial	533	A	59	2,340	0.03	A	53	2,440	0.02	A
Harney Way east of Executive Park Blvd.	4-Lane Arterial	2,488	A	236	3,840	0.06	A	244	4,560	0.05	A
Alana Way	3-Lane Arterial	3,065	A	359	1,270	0.28	A	230	2,220	0.10	A
Beatty Avenue	2-Lane Collector	1,297	C	229	1,190	0.19	C	160	1,200	0.13	C
Geneva Avenue west of Schwerin Street	4-Lane Arterial	19,200	D	1,160	3,110	0.37	D	1,427	3,110	0.46	D
Guadalupe Canyon Pkwy. east of Carter Street	3-Lane Highway	10,776	B	742	1,970	0.38	B	689	4,230	0.16	A

NOTES:

1. Volumes were obtained from local jurisdictions. Where recent counts were not available, volumes were derived from the City of Brisbane 1993 General Plan.
2. Peak-hour capacities were derived from standard FDOT capacities, applying local adjustment factors for design hour and directional split variations.

Table A-3-11
BRISBANE BAYLANDS/EXECUTIVE PARK: CORRIDOR LEVEL OF SERVICE YEAR 2013 WITHOUT PROJECT

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic \1\	Level of Service	AM Peak-Hour Volume	AM Peak-Hour Capacity \2\	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume	PM Peak-Hour Capacity \2\	Volume/Capacity Ratio	Level of Service
US 101 south of Cesar Chavez Street	8-Lane Freeway	327,020	F	18,660	16,700	1.12	F	18,660	16,700	1.12	F
US 101 south of Candlestick Park Connections	8-Lane Freeway	206,540	F	16,720	15,920	1.05	F	16,720	14,300	1.17	F
Third Street north of Thomas Avenue	6-Lane Arterial	15,280	D	1,400	4,740	0.30	D	1,400	5,810	0.24	D
Bayshore Blvd. south of Sunnydale Avenue	6-Lane Arterial	39,340	D	1,440	5,320	0.27	D	2,430	5,660	0.43	D
Bayshore Blvd. north of Guadalupe Canyon Pkwy.	4-Lane Arterial	32,590	E	2,420	3,660	0.66	D	3,090	3,280	0.94	E
Jamestown Avenue	4-Lane Arterial	3,410	A	120	2,340	0.05	A	510	4,610	0.11	A
Harvey Way east of Executive Park Blvd.	4-Lane Arterial	5,530	A	290	3,840	0.08	A	700	4,560	0.15	A
Alana Way	3-Lane Arterial	12,044	F	250	1,730	0.14	A	1,860	1,010	1.84	F
Beatty Avenue	2-Lane Collector	2,680	C	510	1,190	0.43	C	290	1,200	0.24	C
Geneva Avenue west of Schwerin Street	4-Lane Arterial	25,720	D	1,680	3,110	0.54	D	1,480	3,110	0.48	D
Guadalupe Canyon Pkwy. east of Carter Street	3-Lane Highway	17,390	B	980	2,020	0.48	B	1,080	4,350	0.25	A

NOTES:

- Volumes were derived by extracting Project traffic from the Brisbane 1993 General Plan forecast and the Metropolitan Transportation Commission year 2010 traffic model.
- Peak-hour capacities were derived from standard FDOT capacities, applying local adjustment factors for design hour and directional split variations.
Daily capacities were derived by extrapolating the capacity of the Peak-Hour (a.m. or p.m.) with the higher peak direction volume.

Table A-3-12
BRISBANE BAYLANDS/EXECUTIVE PARK: CORRIDOR LEVEL OF SERVICE YEAR 2013 WITH PROJECT

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic \1\	Level of Service	AM Peak-Hour Volume	AM Peak-Hour Capacity \2\	Volume/ Capacity Ratio	Level of Service	PM Peak-Hour Volume	PM Peak-Hour Capacity \2\	Volume/ Capacity Ratio	Level of Service
US 101 south of Cesar Chavez Street	8-Lane Freeway	331,930	F	19,450	16,700	1.16	F	19,450	16,700	1.16	F
US 101 south of Candlestick Park Connections	8-Lane Freeway	208,570	F	17,040	15,920	1.07	F	17,040	14,300	1.19	F
Third Street north of Thomas Avenue	6-Lane Arterial	16,970	D	1,670	4,740	0.35	D	1,650	5,810	0.28	D
Bayshore Blvd. south of Sunnydale Avenue	6-Lane Arterial	42,950	D	2,020	5,320	0.38	D	2,970	5,660	0.52	D
Bayshore Blvd. north of Guadalupe Canyon Pkwy.	4-Lane Arterial	33,560	E	2,580	3,660	0.70	D	3,240	3,280	0.99	E
Jamestown Avenue	4-Lane Arterial	4,090	A	230	1,800	0.13	A	610	3,630	0.17	A
Harney Way east of Executive Park Blvd.	4-Lane Arterial	6,210	A	400	3,840	0.10	A	800	4,560	0.18	A
Alana Way	3-Lane Arterial	14,020	F	640	2,000	0.32	A	2,090	1,110	1.88	F
Beatty Avenue	2-Lane Collector	3,350	C	610	1,190	0.51	C	390	1,200	0.33	C
Geneva Avenue west of Schwerin Street	4-Lane Arterial	27,040	D	1,950	3,110	0.63	D	1,620	3,110	0.52	D
Guadalupe Canyon Pkwy. east of Carter Street	3-Lane Highway	19,020	C	1,180	1,990	0.59	C	1,380	4,340	0.32	A

NOTES:

1. Volumes were obtained from the City of Brisbane 1993 General Plan and the Metropolitan Transportation Commission year 2010 traffic model.
2. Peak-hour capacities were derived from standard FDOT capacities, applying local adjustment factors for design hour and directional split variations.
Daily capacities were derived by extrapolating the capacity of the Peak-Hour (a.m. or p.m.) with the higher peak direction volume.

Table A-3-13
HARBOR BAY ISLE: CORRIDOR LEVEL OF SERVICE EXISTING CONDITIONS

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic \1\	Level of Service	AM Peak-Hour Volume	AM Peak-Hour Capacity \2\	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume	PM Peak-Hour Capacity \2\	Volume/Capacity Ratio	Level of Service
I-880 south of High Street	8-Lane Freeway	186,000	D	13,870	18,540	0.75	C	14,470	18,300	0.79	D
I-880 north of Davis Street	8-Lane Freeway	180,000	C	13,420	18,540	0.72	C	14,010	18,310	0.77	C
Miller Sweeney Bridge	2-Lane Arterial	19,001	E/F	1,130	2,120	0.53	D	1,810	1,810	1.00	E/F
High Street Bridge	2-Lane Arterial	25,676	E/F	1,800	1,980	0.91	E	2,240	2,240	1.00	E/F
High Street east of Lincoln Avenue	2-Lane Collector	11,391	D	900	1,640	0.55	C	1,000	1,410	0.71	D
Fernside Boulevard east of Central Avenue	2-Lane Collector	11,253	D	920	1,300	0.71	D	1,000	1,570	0.64	D
Bay Farm Island Bridge	4-Lane Arterial	41,428	D	3,400	3,920	0.87	D	3,790	4,170	0.91	D
Island Drive	4-Lane Arterial	31,300	C	2,060	2,970	0.69	C	2,660	3,270	0.81	C
Harbor Bay Parkway	4-Lane Arterial	29,963	A	2,480	3,280	0.76	A	2,860	3,550	0.81	A
Doolittle Drive south of Harbor Bay Parkway	2-Lane Highway	30,230	E	2,310	2,660	0.87	E	2,900	3,020	0.96	E
Doolittle Drive south of Hegenberger Road	4-Lane Arterial	23,824	B	1,550	3,980	0.39	B	1,990	3,850	0.52	B
Airport Drive west of Earhart Road	4-Lane Arterial	35,768	D	2,270	3,550	0.64	D	2,730	3,790	0.72	D
Hegenberger Road west of I-880	6-Lane Arterial	40,350	C	2,600	5,710	0.46	C	3,000	5,470	0.55	C
98th Avenue west of I-880	4-Lane Arterial	18,763	C	1,380	3,480	0.40	C	1,640	3,450	0.48	C
Davis Street west of I-880	4-Lane Arterial	27,552	D	2,280	3,420	0.67	D	2,210	3,530	0.63	D

NOTES:

1. Volumes were obtained from local jurisdictions. Where recent counts were not available, new counts were taken in February of 1995.
2. Peak-hour capacities were derived from standard PDOT capacities, applying local adjustment factors for design hour and directional split variations.
Daily capacities were derived by extrapolating the capacity of the Peak-Hour (a.m. or p.m.) with the higher peak direction volume.

Table A-3-14
HARBOR BAY ISLE: CORRIDOR LEVEL OF SERVICE YEAR 2010 WITHOUT PROJECT

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic \1\	Level of Service	AM Peak-Hour Volume	AM Peak-Hour Capacity \2\	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume	PM Peak-Hour Capacity \2\	Volume/Capacity Ratio	Level of Service
I-880 south of High Street	8-Lane Freeway	207,580	D	14,690	18,540	0.79	D	16,370	18,300	0.89	D
I-880 north of Davis Street	8-Lane Freeway	213,590	D	15,030	18,540	0.81	D	17,020	18,310	0.93	D
Miller Sweeney Bridge	2-Lane Arterial	22,640	F	1,410	2,120	0.67	D	2,130	1,810	1.18	F
High Street Bridge	2-Lane Arterial	33,690	F	2,510	1,980	1.27	F	2,500	2,240	1.12	F
High Street east of Lincoln Avenue	2-Lane Collector	13,950	D	1,260	1,640	0.77	D	960	1,410	0.68	D
Fernside Boulevard east of Central Avenue	2-Lane Collector	21,520	F	1,780	1,300	1.37	F	1,670	1,580	1.06	F
Bay Farm Island Bridge	4-Lane Arterial	62,780	F	5,300	3,910	1.36	F	4,860	4,170	1.17	F
Island Drive	4-Lane Arterial	32,650	D	2,840	2,970	0.96	D	2,680	3,270	0.82	C
Harbor Bay Parkway	4-Lane Arterial	27,160	A	1,760	3,280	0.54	A	2,020	3,540	0.57	A
Cross Airport Roadway \3\	4-Lane Arterial	44,380	A	2,810	5,240	0.54	A	4,180	5,640	0.74	A
Doolittle Drive south of Harbor Bay Parkway	2-Lane Highway	35,570	F	2,870	2,670	1.07	F	2,750	3,020	0.91	E
Doolittle Drive south of Hegenberger Road	4-Lane Arterial	44,750	C	3,260	3,980	0.82	C	2,900	3,850	0.75	C
Airport Drive west of Earhart Road	4-Lane Arterial	93,680	F	6,010	3,540	1.70	F	5,920	3,790	1.56	F
Hegenberger Road west of I-880	6-Lane Arterial	62,970	D	4,790	5,700	0.84	D	3,110	5,470	0.57	C
98th Avenue west of I-880	4-Lane Arterial	57,320	F	4,560	3,480	1.31	F	3,960	3,440	1.15	F
Davis Street west of I-880	4-Lane Arterial	37,190	E	3,260	3,420	0.95	E	2,550	3,530	0.72	E

NOTES:

1. Volumes were derived from the Airport Roadway Project (ARP) EIR. Traffic generated by the proposed research and development center (per General Plan) was removed from the ARP EIR volumes. The ARP EIR volumes were derived from the Alameda Countywide Traffic Model.
2. Peak-hour capacities were derived from standard FDOT capacities, applying local adjustment factors for design hour and directional split variations.
3. Cross Airport Roadway, which was approved in the 1986 Measure B program, is currently underway and will serve as a reliever route to Doolittle Drive. Daily capacities were derived by extrapolating the capacity of the Peak-hour (am or pm) with the higher peak direction volume.

**Table A-3-15
HARBOR BAY ISLE: CORRIDOR LEVEL OF SERVICE YEAR 2010 WITH PROJECT**

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic ¹	Level of Service	AM Peak-Hour Volume	AM Peak-Hour Capacity ²	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume	PM Peak-Hour Capacity ²	Volume/Capacity Ratio	Level of Service
I-880 south of High Street	8-Lane Freeway	211,330	D	15,250	18,540	0.82	D	16,970	18,300	0.93	D
I-880 north of Davis Street	8-Lane Freeway	216,960	E	15,560	18,540	0.84	D	17,520	18,310	0.96	E
Miller Sweeney Bridge	2-Lane Arterial	23,580	F	1,590	2,120	0.75	D	2,250	1,810	1.24	F
High Street Bridge	2-Lane Arterial	35,160	F	2,750	1,980	1.39	F	2,720	2,240	1.21	F
High Street east of Lincoln Avenue	2-Lane Collector	14,440	D	1,380	1,640	0.84	D	1,000	1,410	0.71	D
Fernside Boulevard east of Central Avenue	2-Lane Collector	23,140	F	2,020	1,300	1.55	F	1,920	1,580	1.22	F
Bay Farm Island Bridge	4-Lane Arterial	67,670	F	6,120	3,910	1.57	F	5,550	4,170	1.33	F
Island Drive	4-Lane Arterial	32,650	D	2,840	2,970	0.96	D	2,680	3,270	0.82	C
Harbor Bay Parkway	4-Lane Arterial	34,980	D	3,060	3,280	0.93	D	3,160	3,540	0.89	C
Cross Airport Roadway ³	4-Lane Arterial	51,210	D	3,870	5,240	0.74	A	5,240	5,640	0.93	D
Doolittle Drive south of Harbor Bay Parkway	2-Lane Highway	38,500	F	3,340	2,670	1.25	F	3,190	3,020	1.06	F
Doolittle Drive south of Hegenberger Road	4-Lane Arterial	46,800	D	3,590	3,980	0.90	D	3,210	3,850	0.83	C
Airport Drive west of Earhart Road	4-Lane Arterial	100,510	F	7,060	3,540	1.99	F	6,990	3,790	1.84	F
Hegenberger Road west of I-880	6-Lane Arterial	66,860	E	5,390	5,700	0.95	E	3,710	5,470	0.68	D
98th Avenue west of I-880	4-Lane Arterial	61,140	F	5,160	3,480	1.48	F	4,550	3,440	1.32	F
Davis Street west of I-880	4-Lane Arterial	38,950	F	3,540	3,420	1.04	F	2,820	3,530	0.80	E

NOTES:

1. Volumes were derived from the Airport Roadway Project (ARP) EIR, Port of Oakland. Adjustments were made to reflect a larger R&D use as proposed by UCSF. The ARP EIR volumes were derived from the Alameda Countywide Traffic Model, Alameda County CMA.
2. Peak-hour capacities were derived from standard FDOT capacities, applying local adjustment factors for design hour and directional split variations.
3. Cross Airport Roadway, which was approved in the 1986 Measure B program, is currently underway and will serve as a reliever route to Doolittle Drive. Daily capacities were derived by extrapolating the capacity of the Peak-Hour (am or pm) with the higher peak direction volume.

Table A-3-16
MISSION BAY: CORRIDOR LEVEL OF SERVICE EXISTING CONDITIONS

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic\1\	Level of Service	AM Peak-Hour Volume\1\	AM Peak-Hour Capacity\2\	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume\1\	PM Peak-Hour Capacity\2\	Volume/Capacity Ratio	Level of Service
I-80 Bay Bridge	10-Lane Freeway	253,000	E/F	22,800	22,800	1.00	E/F	22,800	22,800	1.00	E/F
US 101 south of Mariposa Street	8-Lane Freeway	273,000	E/F	18,100	18,100	1.00	E/F	18,100	18,100	1.00	E/F
US 101 south of Chavez Street	8-Lane Freeway	285,000	E/F	16,700	16,700	1.00	E/F	16,700	16,700	1.00	E/F
I-280 south of Mariposa Street	6-Lane Freeway	87,000	C	7,900	10,590	0.75	C	7,900	10,590	0.75	C
Third Street near Chavez Street	6-Lane Arterial	24,000	C	2,300	4,820	0.48	C	2,300	4,820	0.48	C
Third Street south of Fourth Street	4-Lane Arterial	22,560	D	2,180	2,590	0.84	D	2,210	3,170	0.70	D
Third Street south of Folsom Street	4-Lane Arterial One-Way	23,310	C	1,710	3,930	0.44	C	1,740	3,930	0.44	C
Fourth Street south of Mission Creek Marina Bridge	3-Lane Arterial	19,380	E/F	2,010	2,010	1.00	E/F	1,940	2,470	0.79	D
Fourth Street south of Howard Street	4-Lane Arterial One-Way	28,200	C	1,420	3,930	0.36	C	2,030	3,930	0.52	C
Seventh Street south of Bryant Street	3-Lane Arterial	24,000	E	2,300	2,370	0.97	E	2,300	2,370	0.97	E
Bryant Street west of Second Street	5-Lane Arterial One-Way	15,900	C	1,320	4,910	0.27	C	1,070	4,910	0.22	C
Harrison Street west of Second Street	5-Lane Arterial	21,380	D	1,370	3,130	0.44	D	1,680	3,100	0.54	D
Chavez Street west of Folsom Street	6-Lane Arterial	41,710	E	3,060	4,040	0.76	E	3,450	4,610	0.75	E
Chavez Street west of Evans Avenue	4-Lane Arterial	30,000	E	2,110	2,660	0.79	E	2,150	3,100	0.69	D
Mariposa Street west of I-280 southbound ramps	2-Lane Arterial	8,400	D	830	1,300	0.64	D	770	1,560	0.49	C
16th Street east of Rhode Island Street	2-Lane Arterial	8,310	C	650	1,650	0.39	C	680	1,560	0.44	C

NOTES:

1. Volumes were obtained from Caltrans and local jurisdictions. Where recent counts were not available, new counts were taken in February of 1995 by Fehr & Peers.
2. Peak-hour capacities were derived from standard FDOT capacities, applying local adjustment factors for design hour and directional split variations.

Source: Fehr & Peers, 1995.

Table A-3-17
MISSION BAY: CORRIDOR LEVEL OF SERVICE YEAR 2010 WITHOUT PROJECT

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic\1\	Level of Service	AM Peak-Hour Volume\1\	AM Peak-Hour Capacity\2\	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume\1\	PM Peak-Hour Capacity\2\	Volume/Capacity Ratio	Level of Service
I-80 Bay Bridge	10-Lane Freeway	267,350	F	24,090	22,800	1.06	F	24,090	22,800	1.06	F
US 101 south of Mariposa Street	8-Lane Freeway	289,860	F	19,220	18,100	1.06	F	19,220	18,100	1.06	F
US 101 south of Chavez Street	8-Lane Freeway	334,050	F	19,570	16,700	1.17	F	19,570	16,700	1.17	F
I-280 south of Mariposa Street	6-Lane Freeway	123,880	F	11,250	10,590	1.06	F	11,250	10,590	1.06	F
Third Street near Chavez Street	6-Lane Arterial	6,660	C	640	4,820	0.13	C	640	4,820	0.13	C
Third Street south of Fourth Street	4-Lane Arterial	8,300	C	800	2,590	0.31	C	810	3,170	0.26	C
Third Street south of Folsom Street	4-Lane Arterial One-Way	40,300	D	2,960	3,930	0.75	D	3,010	3,930	0.77	D
Fourth Street south of Mission Creek Marina Bridge	3-Lane Arterial	5,330	D	550	2,010	0.27	D	530	2,470	0.21	D
Fourth Street south of Howard Street	4-Lane Arterial One-Way	33,340	C	1,680	3,930	0.43	C	2,400	3,930	0.61	C
Seventh Street south of Bryant Street	3-Lane Arterial	4,010	D	390	2,370	0.16	D	390	2,370	0.16	D
Bryant Street west of Second Street	5-Lane Arterial One-Way	16,900	C	1,410	4,910	0.29	C	1,140	4,910	0.23	C
Harrison Street west of Second Street	5-Lane Arterial	11,100	D	710	3,130	0.23	D	870	3,100	0.28	D
Chavez Street west of Folsom Street	6-Lane Arterial	39,980	E	2,940	4,040	0.73	E	3,300	4,610	0.72	E
Chavez Street west of Evans Avenue	4-Lane Arterial	30,770	E	2,170	2,660	0.82	E	2,200	3,100	0.71	E
Mariposa Street west of I-280 southbound ramps	2-Lane Arterial	9,130	D	900	1,300	0.69	D	840	1,560	0.54	C
16th Street east of Rhode Island Street	2-Lane Arterial	9,940	C	780	1,650	0.47	C	820	1,560	0.53	C

NOTES:

1. Volumes were obtained from MTC's year 2010 traffic model.

2. Peak-hour capacities were derived from standard FDOT capacities, applying local adjustment factors for design hour and directional split variations.

Source: Fehr & Peers, 1995.

Table A-3-18
MISSION BAY: CORRIDOR LEVEL OF SERVICE YEAR 2010 WITH PROJECT

Roadway Segment	Facility Type	Average Weekday		AM Peak-Hour Conditions				PM Peak-Hour Conditions			
		Average Daily Traffic\1\	Level of Service	AM Peak-Hour Volume\1\	AM Peak-Hour Capacity\2\	Volume/Capacity Ratio	Level of Service	PM Peak-Hour Volume\1	PM Peak-Hour Capacity\2\	Volume/Capacity Ratio	Level of Service
I-80 Bay Bridge	10-Lane Freeway	268,350	F	24,250	22,800	1.06	F	24,250	22,800	1.06	F
US 101 south of Mariposa Street	8-Lane Freeway	290,120	F	19,310	18,100	1.07	F	19,230	18,100	1.06	F
US 101 south of Chavez Street	8-Lane Freeway	334,560	F	19,680	16,700	1.18	F	19,660	16,700	1.18	F
I-280 south of Mariposa Street	6-Lane Freeway	124,910	F	11,630	10,590	1.10	F	11,600	10,590	1.10	F
Third Street near Chavez Street	6-Lane Arterial	8,110	C	830	4,820	0.17	C	840	4,820	0.17	C
Third Street south of Fourth Street	4-Lane Arterial	11,340	C	1,110	2,590	0.43	C	1,300	3,170	0.41	C
Third Street south of Folsom Street	4-Lane Arterial One-Way	40,620	D	2,980	3,930	0.76	D	3,100	3,930	0.79	D
Fourth Street south of Mission Creek Marina Bridge	3-Lane Arterial	5,920	D	630	2,010	0.31	D	560	2,470	0.23	D
Fourth Street south of Howard Street	4-Lane Arterial One-Way	33,520	C	1,710	3,930	0.44	C	2,410	3,930	0.61	C
Seventh Street south of Bryant Street	3-Lane Arterial	4,100	D	390	2,370	0.16	D	400	2,370	0.17	D
Bryant Street west of Second Street	5-Lane Arterial One-Way	17,150	C	1,410	4,910	0.29	C	1,160	4,910	0.24	C
Harrison Street west of Second Street	5-Lane Arterial	11,690	D	820	3,130	0.26	D	1,000	3,100	0.32	D
Chavez Street west of Folsom Street	6-Lane Arterial	40,270	E	2,980	4,040	0.74	E	3,350	4,610	0.73	E
Chavez Street west of Evans Avenue	4-Lane Arterial	31,260	E	2,240	2,660	0.84	E	2,280	3,100	0.74	E
Mariposa Street west of I-280 southbound	2-Lane Arterial	9,900	D	1,060	1,300	0.82	D	920	1,560	0.59	C
16th Street east of Rhode Island Street	2-Lane Arterial	12,930	D	1,210	1,650	0.73	D	1,370	1,560	0.88	D

NOTES:

1. Background traffic volumes were obtained from MTC's year 2010 model. Project traffic volumes were derived from land use and mode split assumptions from EIP Associates and Wilbur Smith Associates. Project was treated as an additional increment to MTC's land use assumptions in Mission Bay.
2. Peak-hour capacities were derived from standard FDOT capacities, applying local adjustment factors for design hour and directional split variations.

Source: Fehr & Peers, 1996.

Air Quality

TABLE A-4-1

SUMMARY OF RECORDED AIR POLLUTANT LEVELS IN SAN FRANCISCO

Year	Ozone		Nitrogen Dioxide		Carbon Monoxide				PM ₁₀	
	1-hr High	Number of Exceedances	1-hr High	Number of Exceedances	1-hr High	Number of Exceedances	8-hr High	Number of Exceedances	24-hr High	Number of Exceedances
1994	0.06	0	0.09	0	7.5	0	5.3	0	NA	6
1993	0.08	0	0.08	0	10	0	NA	6.9	69	5
1992	0.08	0	0.09	0	10	0	7.4	0	81	9
1991	0.05	0	0.10	0	14	0	8.4	0	109	15
1990	0.06	0	0.11	0	12	0	6.9	0	165	12

Note: The High is the highest concentration for the year. Exceedances for ozone, nitrogen dioxides and carbon monoxide refer to federal and state standards, while those for PM₁₀ refer only to state standards. The ozone, nitrogen dioxide, and inhalable particulate data were collected at the 10 Arkansas Street station. The carbon monoxide data were collected at the 939 Ellis Street station. The ozone, nitrogen dioxide, and carbon monoxide data are presented in parts per million. The PM₁₀ data are presented in micrograms per cubic meter. NA = not available.

Source: California Air Resources Board, *California Air Quality Data Summaries 1993, 1992, 1991, 1990*; Bay Area Air Quality Monitoring District, *Air Currents*, April 1995.

TABLE A-4-2
AMBIENT AIR TOXICS MONITORING DATA, 1992,
10 Arkansas Street, San Francisco, California

Toxic Air Contaminant	Number of Observations	Number of Observations Below Level of Detection	Maximum Concentration (ppm) ¹	Minimum Concentration (ppm)	Mean Concentration ² (ppm)
Vinyl chloride	24	24	< 0.30	< 0.30	< 0.30
Methylene chloride	24	3	11.20	< 0.50	1.76
Chloroform	24	18	0.06	< 0.02	0.02
Ethylene dichloride	24	24	< 0.10	< 0.10	< 0.10
Methyl chloroform	24	0	3.07	0.38	0.85
Carbon tetrachloride	24	0	0.19	0.10	0.12
Trichloroethylene	24	24	< 0.08	< 0.08	< 0.08
Benzene	24	0	3.75	0.50	1.26
Ethylene dibromide	24	24	< 0.02	< 0.02	< 0.02
Perchloroethylene	24	0	0.38	0.06	0.16
Toluene	24	0	10.75	1.40	3.63

¹ppm = parts per million.

²Includes observations less than the Level of Detection as one-half of the Level of Detection.

Source: Bay Area Air Quality Management District, *Status of the Bay Area Air Quality Management District Toxic Air Contaminant Control Program*, 1993.

TABLE A-4-3

SUMMARY OF RECORDED AIR POLLUTANT LEVELS IN OAKLAND

Year	Ozone		Nitrogen Dioxide		Carbon Monoxide				PM ₁₀	
	1-hr High	Number of Exceedances	1-hr High	Number of Exceedances	1-hr High	Number of Exceedances	8-hr High	Number of Exceedances	24-hr High	Number of Exceedances
1994	0.06	0	NA	NA	NA	NA	6	0	NA	NA
1993	0.11	1	NA	NA	NA	NA	4.9	0	NA	NA
1992	0.08	0	NA	NA	NA	NA	4.6	0	NA	NA
1991	0.06	0	NA	NA	NA	NA	6.8	0	NA	NA
1990	0.06	0	NA	NA	NA	NA	6.1	0	NA	NA
<i>Note:</i> The High is the highest concentration for the year. Exceedances for ozone, nitrogen dioxides and carbon monoxide refer to federal and state standards, while those for PM₁₀ refer only to state standards. The ozone, nitrogen dioxide, carbon monoxide, and inhalable particulate data were collected at the Alice Street station. The ozone, nitrogen dioxide, and carbon monoxide data are presented in parts per million. The PM₁₀ data are presented in micrograms per cubic meter. NA = not available. <i>Source:</i> California Air Resources Board, <i>California Air Quality Data Summaries 1993, 1992, 1991, 1990</i>; Bay Area Air Quality Monitoring District, <i>Air Currents</i>, April 1995.										

TABLE A-4-4
AMBIENT AIR TOXICS MONITORING DATA, 1992,
198 Oak Road, Oakland, California

Toxic Air Contaminant	Number of Observations	Number of Observations Below Level of Detection	Maximum Concentration (ppm) ¹	Minimum Concentration (ppm)	Mean Concentration ² (ppm)
Vinyl chloride	24	24	< 0.30	< 0.30	< 0.30
Methylene chloride	24	15	0.80	< 0.50	0.36
Chloroform	24	15	0.05	< 0.02	0.02
Ethylene dichloride	24	24	< 0.10	< 0.10	< 0.10
Methyl chloroform	24	0	1.59	0.38	0.85
Carbon tetrachloride	24	0	0.12	0.10	0.11
Trichloroethylene	24	24	< 0.08	< 0.08	< 0.08
Benzene	24	0	2.00	0.30	0.99
Ethylene dibromide	24	24	< 0.02	< 0.02	< 0.02
Perchloroethylene	24	0	0.28	0.04	0.17
Toluene	24	0	3.9	0.70	1.99

¹ppm = parts per million.

²Includes observations less than the Level of Detection as one-half of the Level of Detection.

Source: Bay Area Air Quality Management District, *Status of the Bay Area Air Quality Management District Toxic Air Contaminant Control Program*, 1993.

Hazardous Materials

This appendix contains supporting documentation for the Hazardous Materials analysis in this EIR. Specifically, it contains additional information regarding the following:

- regulatory setting;
- a list of solid, liquid, and gaseous chemicals that could be present at the Parnassus Heights laboratories;
- definitions for Biosafety Levels;
- emergency response incidents and a summary of worker's compensation claims at UCSF;
- health effects of hazardous chemicals, radioactive materials, and biohazardous materials; and
- potential health effects of contaminants present at the Brisbane Baylands site.

Regulatory Setting

Hazardous materials handling activities are subject to numerous laws and regulations at all levels of government intended to protect health and safety. These laws apply to UCSF just as they do to all hazardous materials users. The laws and regulations summarized in this section are those most important to working with hazardous materials. Table A-5-1 lists these regulatory requirements.

Hazardous Materials Management Planning

State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to health or the environment in the event that such materials are accidentally released. Federal laws, such as the Emergency Planning and Community-Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act or SARA, Title III) impose similar requirements. These requirements are enforced by the California Office of Emergency Services.

The Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles specified quantities of hazardous materials prepare a Business Plan, which must include the following (*California Health and Safety Code*, §25504):

- details, including floor plans, of the facility and business conducted at the site;
- an inventory of hazardous materials that are handled or stored;
- an emergency response plan; and
- a training program in safety procedures and emergency response for new employees, including an annual refresher course for all employees.

In 1988, the Business Plan Act was amended to include public agencies within the definition of a business, resulting in a requirement for state agencies to submit Business Plans to designated local agencies. As of January 1, 1992, state agencies were also to comply with local regulations implementing the Business Plan Act.

TABLE A-5-1
SUMMARY OF APPLICABLE REGULATIONS AND COMPLIANCE REQUIREMENTS

Hazardous Materials Management Planning

Emergency Planning and Community Rights-to Know Act
Hazardous Materials Release Response Plans and Inventory Law of 1985
Business Plan Act, 1988

Hazardous Materials Transportation

U.S. Department of Transportation regulations in Code of Federal Regulations, Title 49
U.S. Postal Service regulations in Code of Federal Regulations, Title 39
California Vehicle Code, Section 32000
California Code of Regulations, Title 13
California Highway Patrol requirements for hazardous materials and wastes labeling and packing

Hazardous Material Worker Safety Requirements

Federal Occupational Safety and Health Act, 1970
California Health and Safety regulations in California Code of Regulations, Title 8
Toxic Substances Control Act, Code of Federal Regulations, Title 40
National Fire Codes, Title 45
California Fire Code, California Code of Regulations, Title 24
California Safe Drinking Water and Toxic Enforcements Act (Proposition 65)

Hazardous Waste Handling Requirements

Federal Resource Conservation and Recovery Act, 1976
Federal Hazardous and Solid Waste Act, 1984
California Hazardous Waste Control Law

Biohazardous Waste Handling Requirements

California Medical Waste Management Act, 1990

Radioactive Materials Requirements

Federal Atomic Energy Act, Code of Federal Regulations, Title 10
California Radiation Control Law
California Code of Regulations, Title 17

Animal Care

Animal Welfare Act, Code of Federal Regulations, Title 9, Parts 1, 2, and 3
National Institutes of Health requirements in Guide for the Care and Use of Laboratory Animals, NIH
Publication No. 86-23, revised 1985

Emergency Response to Hazardous Materials and Wastes Incidents

Federal Emergency Services Act
California Emergency Response Plan, administered by the California Office of Emergency Services
California Government Code, Section 8550
Response requirements in the Hazardous Materials Release and Inventory Law, 1985

Source: Environmental Science Associates.

Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal/OSHA) and the Federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations.

Under the authority of the Occupational Safety and Health Act of 1970, the federal government has adopted numerous regulations pertaining to worker safety (contained in the *Code of Federal Regulations*, Title 29). These regulations set standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries. Some OSHA regulations contain standards relating to hazardous materials handling, including workplace conditions, employee protection requirements, first aid, and fire protection, as well as material handling and storage. Because California has a federally-approved OSHA program, it is required to adopt regulations that are at least as stringent as federal standards.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace (which are detailed in the *California Code of Regulations*, Title 8, Section 3203) include requirements for employee safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances as well as communicating hazard information related to hazardous substances and their handling. The hazard communication program also requires that Material Safety Data Sheets (MSDS) be available to employees and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and emergency evacuation training).

Both federal and state laws include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. The training must include methods in the safe handling of hazardous materials, an explanation of MSDSs, use of emergency response equipment and supplies, and an explanation of the building emergency response plan and procedures.

Chemical safety information must also be available. More detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed in the *Code of Federal Regulations*, Title 29. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be kept in accessible places. Compliance with these regulations reduces the risk of accidents, worker health effects, and emissions.

The California Fire Code (*California Code of Regulations*, Title 24), which is enforced at UCSF by the State Fire Marshal and the local Fire Department, contains state standards for the use and storage of hazardous materials and special standards for buildings where hazardous materials are found. Some of these regulations consist of amendments to *National Fire Codes*, Standard 45, which is regarded as a nationally recognized standard. California Fire Code regulations require personnel training and written procedures and facility closure plan for hazardous materials.

The Safe Drinking Water and Toxics Enforcement Act (Proposition 65), implemented by the State Office of Environmental Health Hazard Assessment, includes the following three elements: (1) prohibits discharges of chemicals known to the State of California to cause cancer or to exhibit reproductive toxicity to any source of drinking water; (2) requires that anyone exposed to such chemicals be warned first; and (3) requires that designated employees report any illegal discharge or threatened illegal discharge of a hazardous waste. State agencies are not required to comply with the first two requirements of Proposition 65, but must comply with the reporting requirements.

Laboratories in California are now required to prepare a Laboratory Chemical Hygiene Plan. Each laboratory at UCSF is required to maintain all elements of the Chemical Hygiene Plan in the laboratory available to all employees. It includes description of site specific response for chemical hygiene and safety, a chemical inventory, site-specific information on chemical receiving, storing, and dispensing, emergency response instructions, site-specific hazardous materials engineering control systems, personal protective equipment, prior approvals required, an employee training checklist and provisions for record keeping, laboratory safety surveys, and establishment and use of specific protocols for performing work and use of hazardous materials. The Chemical Hygiene Plan is in addition to the Injury and Illness Prevention Plan required by *California Code of Regulations*, Title 8, Section 3203.

Hazardous Waste Handling Requirements

The federal Resource Conservation and Recovery Act (RCRA) of 1976 created a major new federal hazardous waste regulatory program that is administered by the EPA. Under the Act, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from "cradle to grave."

The RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle-to-grave" system of regulating hazardous wastes. The Hazardous and Solid Waste Act specifically prohibits the use of certain techniques for the disposal of some hazardous wastes.

Under RCRA, individual states may implement their own hazardous waste programs in lieu of federal requirements as long as the state program is at least as stringent as the federal requirements. The EPA approved California's program to implement federal regulations as of August 1, 1992.

The Hazardous Waste Control Law is administered by the Department of Toxic Substances Control (DTSC). Under the law, the DTSC has adopted extensive regulations governing the generation, transportation, and disposal of hazardous wastes. State requirements differ little from federal laws; both laws impose "cradle to grave" regulatory systems for handling hazardous wastes in a manner that protects human health and the environment. Regulations implementing the state law are generally more stringent than regulations at the federal level.

State regulations list 791 hazardous chemicals as well as 20-30 more common materials that may be hazardous; establish criteria for identifying, packaging and labeling hazardous wastes; prescribe management practices for hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Under both state and federal law, hazardous waste manifests must be retained by the generator for a minimum of three years. Hazardous waste manifests list a description of the waste, its intended destination and regulatory information about the waste. A copy of each manifest must be filed with the State. The generator must match copies of hazardous waste manifests with certification notices from the treatment, disposal, or recycling facility.

Radioactive Materials Requirements

The Radiologic Health Branch of the Department of Health Services administers the federal Atomic Energy Act, the California Radiation Control Law, and related regulations, which govern the receipt, storage, use, transportation, and disposal of sources of ionizing radiation (radioactive material). State regulations require registration for sources of ionizing radiation (radiation-producing machines), licensing of radioactive material use, and protection against radiation exposure. The Radiologic Health Branch also regulates transportation of radioactive materials and disposal of radioactive wastes. Persons who possess a source of ionizing radiation must maintain detailed records concerning the receipt, storage, transfer, and disposal of such materials (*California Health and Safety Code*, §25800 et seq.).

State regulations concerning radiation and radioactive substances are in the *California Code of Regulations, Title 17*. The regulations specify appropriate use and disposal methods for radioactive substances along with occupational and non-occupational safety precautions and worker health monitoring programs.

Biohazardous Materials Requirements

The U.S. Department of Health and Human Services Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health issue guidelines for the handling of biohazardous organisms, which are described in *Biosafety in Microbiological and Biomedical Laboratories*. The Department's guidelines for research involving recombinant DNA molecules are contained in the *Federal Register*. These guidelines are not necessarily legally required, but because National Institutes of Health research funding is contingent upon following the guidelines, they have become industry standards.

Animal Care and Use

The U.S. Department of Agriculture enforces the federal Animal Welfare Act, which establishes standards of care for many species of laboratory animals. Compliance requirements include establishing adequate veterinary care programs, maintaining records of the acquisition and disposition of research animals, and submitting an annual report showing the total number of laboratory animals used in research and teaching; the number of animals that receive anesthetics, analgesics, and sedatives for potential pain or distress; and the number of animals used under conditions of unalleviated pain or distress. Any proposed animal use in research, teaching, or testing must be approved by an Institutional Animal Care and Use Committee. Periodic unannounced inspections are conducted by the U.S. Department of Agriculture animal welfare inspectors.

The National Institutes of Health is a subdivision of the Public Health Service, Department of Health and Human Services. The National Institutes of Health is a major source of grants for research in the health sciences. It publishes the *Guide for the Care and Use of Laboratory Animals*, which includes standards for constructing animal housing, caring for experimental animals, and using animals in research. Adherence to these guidelines is mandatory for institutions either to be accredited by the American Association for the Accreditation of Laboratory Animal Care or to receive funds from the National Institutes of Health.

The Public Health Service publishes the "Public Health Service Policy on Humane Care and Use of Laboratory Animals by Awardee Institutions" in the National Institutes of Health's *Guide for Grants and Contracts*. Present Public Health Service policy requires institutional review of all research projects involving live vertebrate animals by an Institutional Animal Care and Use Committee. The Service will not release funds for any research project until the proposal has received such a review. Public Health Service policy also specifies the composition and functions of the Institutional Animal Care and Use Committee. The campus is also required to file an Animal Welfare Assurance with National Institutes of Health in which the campus agrees to comply with the National Institutes of Health policies.

Most other federal funding sources have adopted the Public Health Service policy as their own and have enacted identical requirements.

In California, the California Department of Fish and Game also regulates animal use and care.

Medical (Biohazardous) Waste Handling Requirements

The Medical Waste Management Act of 1990 created a classification for medical waste to be regulated by the Medical Waste Management Program of the Department of Health Services' Environmental Health Division (now the Division of Drinking Water and Environmental Management (DDWEM)) and eliminated the classification of infectious waste that was controlled by DTSC. Medical waste includes biohazardous and infectious waste as well as sharps waste such as razor blades or syringe needles.

Medical waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to the storage, containment, treatment, and transportation of such wastes (*California Health and Safety Code*, §25015 et seq.). These regulations require that infectious wastes be stored in refrigerated facilities below 32 degrees Fahrenheit for not more than 90 days and that such wastes be properly packaged and labeled. Storage for no more than seven days is recommended; storage for greater than seven days is prohibited for medical waste that is not refrigerated. Steam sterilization units and incinerators used to render infectious waste non-infectious must meet specific design and operating standards established by the DDWEM of the Department of Health Services.

Structural Components

Asbestos

Federal and state laws and regulations also pertain to building materials containing asbestos. Inhalation of airborne fibers is the primary mode of asbestos entry into the body, making friable (easily crumbled) materials the greatest health threat. For this reason, it is regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of Cal/OSHA. These regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos. The agencies with primary responsibility for asbestos safety are the Bay Area Air Quality Management District, Cal/OSHA and OSHA, and the EPA. Some state regulations addressing asbestos-containing materials are more stringent than federal regulations. For example, California requires licensing of contractors who conduct abatement activities.

Polychlorinated Biphenyls (PCBs)

The *Code of Federal Regulations*, Title 40, contains the Toxic Substances Control Act regulations. This Act restricts the use and storage of PCB-containing transformers (defined as those containing at least 500 parts per million PCBs). The EPA also requires that all PCB-containing transformers, whether in use or in storage, be registered with fire protection personnel, and that they be inspected by said personnel every three months. If a leak is found, it must be contained to prevent release and exposure, and then be eliminated.

Hazardous Materials Transportation

The U.S. Department of Transportation has the regulatory responsibility for the safe transportation of hazardous materials between states and to foreign countries. The Department of Transportation regulations govern all means of transportation, except for those packages shipped by mail, which are covered by the U.S. Postal Service regulations. Department of Transportation regulations are contained in the *Code of Federal Regulations*, Title 49; Postal Service regulations are in Title 39.

Every package type used by a hazardous materials shipper must undergo tests which imitate some of the possible rigors of travel. While not every package must be put through every test, most packages must be able to meet the following generic test: the ability to be (a) kept under running water for one-half hour without leaking; (b) dropped, fully loaded, onto a concrete floor; (c) compressed from both sides for a period of time; (d) subjected to low and high pressure; and (e) frozen and heated alternately.

Common carriers are licensed by the California Highway Patrol, pursuant to the California Vehicle Code, Section 32000. This section requires licensing of every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of their business in the delivery of hazardous materials.

Under the Resource Conservation and Recovery Act (RCRA), the U.S. Environmental Protection Agency (EPA) sets standards for transporters of hazardous waste. In addition, the State of California regulates the transportation of hazardous waste originating or passing through the state; state regulations are contained in the *California Code of Regulations*, Title 13.

Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

Two state agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies: the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans).

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations that prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance.

Caltrans has emergency chemical spill identification teams at 72 locations throughout the state. The Caltrans spill identification teams nearest to the project site are located in Fairfield and West Sacramento. These teams can respond within approximately 30 minutes. Within about two hours, contracted spill remediation firms are able to assist Caltrans crews clear larger emergency situations.

Emergency Response to Hazardous Materials Incidents

Pursuant to the Emergency Services Act, the State has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government agencies and private persons. Response to hazardous materials incidents is one part of this plan (*California Government Code*, §8574.1 et seq.). The plan is administered by the state Office of Emergency Services, which coordinates the responses of other agencies including the EPA, the CHP, the Department of Fish and Game, the Regional Water Quality Control Board (RWQCB), and the Division of Occupational and Environmental Disease Control, Division of Drinking Water and Environmental Management and the Radiologic Health Branch of the Department of Health Services.

In addition, pursuant to the Hazardous Materials Release Response Plans and Inventory Law of 1985 (the Business Plan Law), local agencies are required to develop area plans for response to hazardous materials releases. These emergency response plans depend to a large extent on the business plans submitted by entities that handle hazardous materials. An area plan must include pre-emergency planning of procedures for emergency response, notification and coordination of affected government agencies and responsible parties, training, and follow-up.

Chemicals Present at Parnassus Heights Laboratories

A list of solid, liquid, and gaseous chemicals that could potentially be present at Parnassus Heights laboratories is presented in Table A-5-2 below.¹

Definitions of Biosafety Levels

The definitions of Biosafety Levels 1, 2, 3, and 4 summarized below are those given in a Centers for Disease Control/National Institute of Health publication, *Biosafety in Microbiological and Biomedical Laboratories*.

- Biosafety Level 1 practices, safety equipment, and facilities are appropriate for work involving defined and characterized strains of viable microorganisms not known to cause disease in healthy humans. Many agents not ordinarily associated with disease processes in humans are, however, opportunistic pathogens and may cause infection in the young, the aged, and immunodeficient or immunosuppressed individuals. Work is generally conducted on open bench tops; special containment equipment is not required.
- Biosafety Level 2 practices, equipment, and facilities are applicable to work involving moderate-risk agents present in the community and associated with human disease of varying severity. With good microbiological techniques, these agents can be used safely in activities conducted on the open bench, provided the potential for producing splashes or aerosols is low. Primary hazards to personnel working with these agents relate to accidental percutaneous or mucous membrane exposure, or ingestion of infectious materials. Procedures with aerosol or high splash potential that may increase the risk of such personnel exposure must be conducted in physical containment equipment or biological safety cabinets. Laboratory personnel have specific training in handling pathogenic agents. Access to the laboratory is limited when work is being conducted. An autoclave for decontaminating infectious laboratory wastes is available.

TABLE A-5-2
CHEMICALS AT UCSF LABORATORIES

LIQUIDS	SOLIDS
2-propanol	ammonium acetate
acetic acid (and glacial)	ammonium sulfate
acetone	bis
ammonium chloride	boric acid
amplify cesium chloride	
bleach	d-glucose anhydrous
butanol (1-,ISO- SEC-)	dextran
chloroform	dextran sulfate
creatine phospholnase	dextrose, anhydrous
dimethyl formamide	glycine
ethanol (and 190/200 proof)	magnesium chloride
ethyl acetate	magnesium chloride, hexahydrate
formaldehyde	magnesium sulfate
glycerin n-lauroylsarcosine, sodium salt	
glycerol polyvinylpyrrolidone	
heparin, sodium salt	potassium ferrocyanide
isoamyl alcohol	potassium ferrocyanide trihydrate
liquijet II	gas sephadex A-50
methanol	sodium acetate
n-propyl alcohol	sodium bicarbonate
potassium chloride	sodium bicarbonate, USP
potassium hydroxide	sodium chloride
pyruvate kinase type III	sodium citrate
silicone oil, DC 200	sodium hydroxide
silicone oil, DC 550	sodium phosphate, dibasic
sodium hydroxide	sodium phosphate, dibasic, anhydrous
toluene	sodium phosphate, monobasic
trichloroacetic acid	sodium phosphate, monobasic, anhydrous
xylene cyanol	sucrose
xylene cyanol FF	tris
	tris base
GASES tris (2-aminoethyl) amine	
carbon dioxide	trizma base
carbon dioxide	trizma hydrochloride
carbon dioxide	zinc sulfate
helium gas	
nitrogen	
oxygen, refrigerated liquid	

Source: UCSF, 1995: Environmental Science Associates

- Biosafety Level 3 practices, safety equipment, and facilities are applicable to work involving indigenous or exotic agents with a potential for respiratory transmission, and which may cause serious and potentially lethal infection. Primary hazards to personnel working with these agents relate to autoinoculation, ingestion, and exposure to infectious aerosols. All procedures are conducted within biological safety cabinets or by wearing personal protective clothing and devices. The laboratory has special engineering and design features similar to level 2 with the addition of passage through two sets of doors for entry into the laboratory; sealed interior surfaces to disallow penetrations; closed and sealed windows; a non-recirculating ducted exhaust air ventilation system creating directional airflow that draws air into the laboratory through the entry areas; and biological safety cabinets equipped with High Efficiency Particulate Air (HEPA) filters.
- Biosafety Level 4 practices, safety equipment, and facilities are applicable to work involving dangerous and exotic agents which pose a high individual risk of life-threatening disease. Members of the laboratory staff have specific and thorough training in handling extremely hazardous infectious agents. Practices and precautions, in addition to Biosafety Level 3, include strictly controlled access to the laboratory only through shower and change rooms; location in a separate building or physically isolated zone; all activities confined to biological safety cabinets along with one-piece positive pressure personnel suits ventilated by a life-support system; sealed internal walls, floors, and ceilings to facilitate fumigation and decontamination, double-doored autoclave, pass-through dunk-tank, or fumigation chamber for decontaminating materials passing out of the facility; liquid waste decontamination system; and instruments installed to measure pressure differentials between adjacent areas.

Emergency Response Incidents and Summary of Worker's Compensation Claims at UCSF

Table A-5-3 presents the emergency response incidents at UCSF and Table A-5-4 includes a summary of worker's compensation claims.

TABLE A-5-3
EMERGENCY RESPONSE INCIDENTS
AT ALL UCSF FACILITIES FOR WHICH EH&S WAS CALLED

Type of Call	Number of Incidents			
	1992	1993	1994	Average Percent
Chemical Odor	114	89	99	30.4
Chemical Spill or Leak	148	165	93	40.8
Chemical Waste	14	15	9	3.8
Other Chemical	6	11	6	2.3
Biological Odor	4	3	3	1.0
Biological Spill or Leak	16	3	9	2.8
Biological Waste	18	12	7	3.7
Other Biological	3	4	3	1.0
Radioactive Spill	9	6	0	1.5
Radioactive Waste	1	3	1	0.5
Other Radioactive	4	1	3	0.8
Fire	11	5	3	1.9
Fire Odor	12	5	3	2.0
Other Fire (e.g. False Alarms)	1	3	1	0.5
Other	27	27	15	6.9
Total	388	352	255	100.0
Source: UCSF, 1995; Environmental Science Associates.				

Table A-5-4: Worker's Compensation Claims at UCSF

Table A-5-4: Worker’s Compensation Claims at UCSF (page 2)

Health Effects of Hazardous Chemicals, Radioactive Materials, and Biohazardous Materials

Hazardous Chemicals

Various chemicals pose different levels of hazards in their use. Depending upon their concentrations, some substances, such as gasoline or hexane, are flammable. Others, like cyanides or mercuric chloride, are toxic. Some non-radioactive chemicals have the potential for causing cancer or acute and chronic illnesses. The properties and health effects of chemical substances are unique to the individual materials, although they often can be grouped by chemical types. No classifications exist to rate the level of hazard posed by all substances under all circumstances. While some substances may present little potential for hazard, others may be capable, in certain situations, of causing severe health effects. Potential health impacts related to possible chemical exposure off-site are also addressed in the Air Quality section.

Radioactive Materials

The potential human health effects from short-term radiation range from no known health effects at low doses, to nausea and other symptoms of radiation sickness at high doses, and death at very high doses. The primary chronic effect of concern of long-term exposures at low level is a possible increase of certain cancers. Radiation poses a health risk to those who are exposed, but exposure would be prevented with proper use and handling procedures.

Biohazardous Materials

Small quantities of various biologically hazardous substances or infectious agents are used at Parnassus Heights. Biosafety levels implemented for infectious agents are based on the characteristics of the agent (virulence, pathogenicity, route of spread, biological stability, and communicability), the quantity and concentration of the agent, the procedures to be followed in the UCSF laboratories, and the availability of therapeutic measures and vaccines. Most laboratory work with biohazardous materials currently occurs at Biosafety Levels 1, 2 and 3.

Some hazardous organisms used in biological research potentially can cause illness in those exposed. The type of potential illness is dependent on the type and amount of biohazardous material to which a person is exposed. Improper handling techniques can increase the risk of exposure to biological materials. Accidents such as spills or needle sticks can increase the risk of exposure to biohazardous materials. Exposure to biohazardous aerosols is considered to be the most common source of reported infections. Biohazardous aerosols are generated during the mixing, shaking, and other disruptive handling of hazardous organisms. Most biohazardous materials, due to their generally limited viability in the environment, pose no significant hazard to workers or the community; others could pose a potential hazard if accidentally released.

Most biological agents of pathological significance to humans are thought to have a limited ability to survive outside the body. Information on this subject is limited, but research continues as to the actual survival parameters of these agents under varying conditions. For example, survival of viruses in the environment is dependent on a complex interaction of factors. Among the survival factors are ambient temperature, relative humidity, texture and composition of surfaces, exposure to light, presence of other organic material and organisms, and for aquatic environments, the chemical and physical properties of the water. To provide a

greater margin of safety, control measures are based on conservative estimates of maximum periods that viruses can remain infectious (i.e., a worst-case basis).

Biohazardous materials can potentially affect humans through air (inhalation of aerosols), dermal (skin) contact, water (release to the sewer), waste disposal, and accidents. Biological aerosols are generated during the mixing, shaking, and other disruptive handling of biological organisms. Laboratory equipment that could generate aerosols, such as shakers and centrifuges, must be sealed or contained during use. In the laboratory, aerosols deposit in relatively short distances from point sources. Potential aerosol emissions, if not controlled by a biosafety cabinet, are controlled by splash guards and decontamination of surrounding work surfaces. When a laboratory activity is finished, tissues, fluids, and cell cultures are treated as infectious waste. This infectious material is disposed of in biohazard-labeled bags, autoclaved, and sent to the landfill once sterilized. Biohazardous agents of concern include bacteria, parasites, and viruses, fungi and rickettsial organisms. The significance of the increased use of biohazardous agents associated with wastewater discharged to the Publicly Owned Treatment Works appears minimal with current wastewater treatment conditions, because of the characteristics of the agents, the implementation and enforcement of disposal procedures, animal handling and laboratory research protocols, and because potential exposure to the community is believed to be extremely limited. Many of the potential pathogens that could enter the wastewater stream such as *Giardia* sp., *Cryptosporidium* sp., and *Campylobacter* sp. are also common inhabitants of domestic animals, wildlife, and asymptomatic humans in the general population. Any biohazardous agents that survived the disinfection process would also be present in diluted concentrations in the main treatment plant influent.

Regarding the potential risk to UCSF staff, sewage treatment plant workers, or the general community, there is no reliable evidence of increased risk from either bacteria or parasites to human populations when traditional sewage treatment process and preventative measures are used. The risk of infections from viruses is also low. For example, the risk for HIV transmission from wastewater to local wildlife, to water treatment workers, or to the local community is virtually non-existent, based on the effectiveness of disinfectant solutions on virus concentrations, the poor survivability of HIV outside of the body, the receptiveness of animals to the virus, and the difficulty of transmission of the virus between humans under most conditions.

Potential Health Effects of Contaminants Potentially Present at the Brisbane Baylands Site

- Aside from its fire hazard, *diesel fuel* is relatively non-hazardous. Contact is irritating to skin and eyes, and fuel vapors might cause the eyes to smart. If swallowed, it could stimulate bowel movements. Spilled diesel fuel from careless handling or leaking tanks might be a hazard to local wildlife.
- *Lead* poisoning in adults occurs due to inhalation of lead dust or fumes. Acute exposure may leave permanent brain damage. Children show weight loss, weakness, or anemia due to exposure to lead.
- *Copper* itself probably has little or no toxicity, although there are conflicting reports in the literature.² Soluble salts, for example copper sulfate, are strong irritants to skin and mucous membranes. Copper oxide fumes can cause metal fume fever.

- Most forms of arsenic are toxic. Acute symptoms following ingestion relate to irritation of the gastrointestinal tract causing nausea, vomiting, and diarrhea. Chronic poisoning can result in exfoliation and pigmentation of skin and degeneration of liver and kidneys.
- Inhalation of *acetone* may produce headache, fatigue, and bronchial irritation.
- *1,2-Dichloroethene* may cause respiratory irritation.
- Inhalation or ingestion of *benzene* may cause irritation of mucous membranes, restlessness, convulsions, excitement, or depression. *Benzene* has been listed as a known carcinogen.³
- *Ethyl benzene* is irritating to eyes and mucous membranes.
- *Chromium* causes irritant effects on the skin and respiratory passages which could lead to ulceration. Oral ingestion may lead to severe irritation of the gastrointestinal tract.
- *Tetrachloroethene* causes narcotic effects in high concentrations. Defatting action on skin can cause dermatitis.
- *1,1,1-Trichloroethane* is irritating to eyes and mucous membranes.
- *1,1,2-Trichloroethane* is irritating to eyes and mucous membranes.
- Moderate exposure of *trichloroethene* can cause symptoms similar to those due to alcohol intake. Higher concentrations can have narcotic effect.
- *Vinyl chloride* may be narcotic in high concentrations. If spilled on skin, rapid evaporation may cause frostbite. This chemical is listed as a known carcinogen.
- *1,1-Dichloroethene* is irritating to skin and mucous membranes.
- *Xylene* may be narcotic in high concentrations.
- *Toluene* is narcotic in high concentrations.

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1. University of California San Francisco, *Revised Laurel Heights Plan Final Environmental Impact Report*, SCH No. 95033072, September 6, 1995, V.II.
 2. *The Merck Index*, Eleventh Edition, Merck & Company, Incorporated, 1989.
 3. *The Merck Index*, Eleventh Edition, Merck & Company, Incorporated, 1989.

Geology and Seismicity

GLOSSARY

Alquist-Priolo Earthquake Fault Zones

In 1972 the State of California began delineating special studies zones around active and potentially active faults in the state. The zones are revised periodically, and extend 200 to 500 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault, unless proven otherwise. Proposed construction within the Earthquake Fault Zone is permitted only following the completion of a fault location report prepared by a California Registered Geologist.

Corrosive Soils

Soils containing compounds such as sulfates and chlorides. Corrosive soils in contact with concrete or steel foundation elements, such as piers or footings, may weaken those elements, thus reducing their ability to support the loads placed on them. Both concrete and steel can be treated to resist the action of corrosive soils.

End Pile Support Horizon

A layer of solid bedrock to which foundation-supporting piles are driven. The pile receives support from the resistance of the rock at the base of the shaft.

Friction Pile Support Zone

A firm stratum of sub-soil, such as a thick layer of dense silty clay, into which foundation-supporting piles (columns of timber, steel or concrete) are driven. The pile receives support from adhesion of the clay along the shaft and from resistance at the base.

Horizontal Ground Acceleration

The speed at which soil or rock materials are displaced by seismic waves. It is measured as a percentage of the acceleration of gravity ($0.5g = 50$ percent of 32 feet per second squared). *Peak* horizontal ground acceleration is the maximum acceleration expected from the maximum credible earthquake (MCE) predicted to affect a given area. *Repeatable* acceleration refers to the acceleration resulting from multiple seismic shocks. *Sustained* acceleration refers to the acceleration produced by continuous seismic shaking from a single, long-duration event.

Lateral Spreading

A horizontal movement in response to severe groundshaking that can occur in Bay Mud or unsupported soils. Strong earthquake-induced groundshaking can cause soils in stream banks, hillsides, or cut-and-fill slopes to shift toward the unsupported face of the embankment. Structures upslope from these soil shifts would be subject to damage or collapse. This condition also can occur in Bay Mud because the mud has such a high water content

(sometimes as much as 50 percent) that little or no lateral support is provided by the mud during seismic vibration.

Liquefaction

A response to severe groundshaking that can occur in loose soils. This transformation from a solid state to a liquid state ("quicksand"), as a response to seismically-induced groundshaking, can cause ground settling and landsliding. Earthquake-induced liquefaction does not affect bedrock, however it does affect certain types of alluvium under conditions of saturation. The characteristics of a liquefaction-prone deposit include: 1) uniformly fine sand or sandy soil; 2) saturated (usually by groundwater) conditions; 3) loose to moderately dense compaction; and 4) little or no clay-sized particles to act as binders. If these conditions occur within about 30 to 40 feet below the ground surface, vibration sufficiently violent to increase pore pressure beyond the shear strength of the sand particles could cause such soils to liquefy. Any structures supported on the soils would be subject to tilting or settlement (sometimes very violent and rapid) as the supporting capabilities of the soil diminished.

Maximum Credible Earthquake (MCE)

The largest Richter magnitude (M) seismic event that appears to be reasonably capable of occurring under the conditions of the presently known geological framework. In the Bay Area, M8.3 is the maximum credible earthquake for the San Andreas Fault, M7.5 for the Hayward and Calaveras faults, and M7.0 for the Rodgers Creek and Green Valley-Concord faults.

Modified Mercalli Intensity Scale

A 12-point scale of earthquake intensity based on local effects experienced by people, structures, and earth materials. Effects range from those which are detectable only by seismicity recording instruments (I) to total destruction (XII). Most people will feel Intensity IV ground motion indoors and Intensity V outside. The scale was developed in 1902 by Giuseppe Mercalli for European conditions, was adapted in 1931 by Harry Wood and Frank Neumann for North American conditions, and was annotated in 1958 by noted seismologist Charles F. Richter to take modern structural features into account. This latest version has been adopted by the University in the *Policy on Seismic Safety*.

Mud Waves

A result of vertical oscillation of Bay Mud. During seismically-induced oscillation, Bay Mud may deform elastically (i.e., undulate) without necessarily causing rupture of the ground surface. Without appropriate foundation design, the undulation of the mud would damage any structures supported on it.

Richter Scale

A logarithmic scale developed in 1935/36 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials. Each whole number on the Richter scale represents a 10-fold increase in amplitude of the waves on a seismogram and about a 31-fold increase in energy release.

Seiche

A standing-wave oscillation of the surface of water in an enclosed or semi-enclosed basin (such as a lake, bay, or harbor), that is initiated by landslides, earthquakes, or other geologic phenomena, and continues after cessation of the originating force.

Surcharging

A technique for increasing the rate of soil compaction at a building site, prior to construction, by loading the site with excess fill several months or years before a structure is placed on the site. The weight of the fill compresses the underlying material, making it more suitable as foundation support.

Total and Differential Settlement

A function of the compressibility of loose deposits (such as uncompacted fill or some unconsolidated sands) and the weight of overlying fill or structures. When additional fill or a new structure is placed on these deposits, the grains of loose material in the deposits shift to a more stable configuration (more compact) to accommodate the added weight of the new load. This reaction is sometimes referred to as "subsidence." As the supporting material shifts, the load is lowered (settles) during a period of several years or decades before a state of equilibrium is reached. If parts of the load settle more rapidly than others, it is said to settle "differentially," often creating structural deformation in buildings supported on the soils readjusting to the weight of the building.

Tsunami

A sea wave produced by any large-scale, short-duration disruption of the ocean floor, principally by a shallow submarine earthquake, but also by submarine earth movement, subsidence, or volcanic eruption.

I BACKGROUND FOR THE PARNASSUS SITE

A. RELATIONSHIP OF THE CURRENT STUDY TO THE PREVIOUS ENVIRONMENTAL IMPACT REPORTS FOR THE PARNASSUS SITE

Numerous geotechnical studies and EIRs have been prepared for the Parnassus Heights Campus as it has developed. Portions of four previous EIRs are incorporated in the 1996 UCSF LRDP EIR by reference: the Topography, Geography, Soils, and Seismology section of Chapter IX of the *1982 Long Range Development*

*Plan EIR*¹, the Topography, Geology, Soils, and Seismology section of Chapter VI of the *1984 Vision Research Laboratory Building EIR*², the Geology and Hydrology section of Chapter III of the *1986 Campus Library EIR*³, and the Geology/Topography chapter of the 1993 Initial Study for the *Parnassus Heights Central Utilities Plant Project EIR*.⁴ Reconstruction of the Parnassus Heights would occupy locations included in the 1982, 1984, 1986, and 1993 EIRs. Relevant text is summarized below.

B. SUMMARY OF THE RELEVANT TEXT IN THE PREVIOUS ENVIRONMENTAL IMPACT REPORTS FOR THE PARNASSUS SITE

Chapter IX. A. Topography, Geography, Soils, and Seismology of the *1982 Long Range Development Plan EIR* (SCH No. 81102003) very briefly sketches the geo-seismic conditions of the site vicinity. Elevations range from between 375 feet and 425 feet above mean sea level (msl) on the Parnassus shelf, where most of the University buildings are located, to +908 feet msl at the crest of Mount Sutro. Bedrock is overlain by 1 to 70 feet of surface deposits of slope debris and windblown sand. The region has a high level of seismic activity, but "Major earthquakes such as the one that struck northern California in April 1906 are infrequent." Strong seismic groundshaking is expected at the site (Modified Mercalli Intensity VII to VIII), but the site is not directly on the trace of any known fault. A groundwater table exists throughout the site: its depth is seasonally variable. The site is subject to common hazards associated with earthquakes, including landsliding (low to moderate potential), lurching (low to moderate potential), liquefaction (low to nil potential), and settlement caused by differential compaction (low to moderate potential). The potential for surface fault rupture is insignificant. Foundation designs for proposed structures would be based on site-specific geotechnical investigation.

Chapter VI. A. Topography, Geology, Soils, and Seismology of the *1984 Vision Research Laboratory Building EIR* (SCH No. 83091307) provides an excellent description of the geology of Mount Sutro, including its bedrock lithology (Franciscan chert and sandstone), surface deposits (slope debris, ravine fill, dune sand), structure (irregular contacts, shear zones, small fault traces), and relates this information to the existing geo-seismic hazards at the site (seismic and static slope instability, seismic groundshaking potential). Technical Appendix F provides a geologic map, cross sections, surface observations, and bore-hole data for the site. Existing landslides and potential slope instabilities are identified along Medical Center Way West. Violent seismic groundshaking is expected at this site (greater than Intensity IX). Foundation designs for proposed structures would be based on site-specific geotechnical investigation, and precautions would be taken to ensure slope stability during the construction period.

Chapter III. H. Geology and Hydrology of the *1986 Campus Library EIR* (SCH No. 86012808) reiterates the description of the geology of Mount Sutro, emphasizing the structural hazards posed by shear zones and small fault traces. Groundwater occurs at this site in the form of a perched water table on the surface of the bedrock. Violent seismic groundshaking is expected at this site (greater than Intensity IX). There is some potential for seismically induced landsliding because of the instability of shear zones in the bedrock. Shallow landsliding, lurching, and settlement caused by differential compaction can be prevented by slope stabilization during construction. Excavation and building designs would be based on site-specific geotechnical investigation.

Chapter 2.9 Geology/Topography of the 1993 Initial Study for the *Parnassus Heights Central Utilities Plant Project EIR* (SCH No. 93013064) describes the geology of this site in relation to the seismic safety investigations of the City, the requirements of the City's Building Code, and University's Seismic Safety Policy, concluding that the project was in compliance, and posed no additional environmental hazard.

C. SUMMARY OF THE GEOLOGIC CHARACTERISTICS OF THE PARNASSUS SITE

The Campus is not in an Alquist-Priolo Earthquake Fault Zone, indicating that there are no known active faults crossing the site, and that there is little chance that the surface of the site would be ruptured by a fault.⁵ The site is not in an area subject to inundation by seismic sea waves, also known as tsunamis, because it is farther inland and higher above sea level than the calculated height to which such waves are expected to rise.⁶ It is outside the City's Special Geologic Study Areas for other inundation hazards (because there are no reservoirs upslope from the site that would be subject to failure), and for potential ground failure hazards caused by liquefaction or settlement (because the compact soil and bedrock at the site are not subject to these conditions). However, the Campus is within the Special Geologic Study Area for potential ground failure hazards caused by landsliding. As such, the City requires that all new development on the site be preceded by special site investigations to determine the type and degree of hazards present, the appropriate engineering designs to ameliorate the hazards, and the appropriateness of increasing the human population in the Area.⁷

The Campus would be subject to seismically induced groundshaking of Modified Mercalli Intensity VIII, from large earthquakes along the above mentioned active fault zones in the region.⁸ After the 1989 Loma Prieta earthquake, the probability of at least one large earthquake (M7 or greater) in the San Francisco Bay region within the next 30 years was estimated at about 0.67.⁹ Recent studies by the United States Geological Survey indicate unofficially that the probability is about 0.90.¹⁰ On the San Francisco Peninsula segment of the San Andreas fault, the probability was estimated at about 0.23 that an M7 or greater earthquake would occur in this time-frame.¹¹ Structures not designed to withstand seismic vibration would be damaged during major earthquakes affecting the Campus.¹²

Portions of the Campus could be subject to static and/or seismic slope instability because of adversely oriented beds in the chert or shear planes in the greenstone. Structures and roads supported on, or adjacent to, ground subject to seismically induced slope failures could be damaged by landsliding during earthquakes affecting hillside locations on the Campus.¹³

If exposed and allowed to dry during the excavation and construction period, the sand and fill at Parnassus would be subject to wind erosion. If excavation occurred during the rainy season, the exposed material and steep slopes could be subject to storm-water erosion or to static slope instability exacerbated by the weight or lubrication of storm-water. It would be necessary to implement a program of erosion control during excavation to prevent soil loss (and consequent air quality or water quality degradation), as well as to prevent potential landslides.¹⁴

D. MITIGATION MEASURES REQUIRED AT THE PARNASSUS SITE TO COUNTERACT GEO-SEISMIC HAZARDS

In 1988, in response to the need to standardized the approach to seismic safety issues at all UC facilities, the *University Policy on Seismic Safety* was established.¹⁵ After the 1989 Loma Prieta and 1994 Northridge earthquakes, the *University Policy on Seismic Safety* was revised to clarify the University's intent that the Policy apply to all rehabilitated structures, as well as to all new ones, and to identify the codes and guidelines to be followed. Consequently, the guidelines in the current *San Francisco Community Safety Element*, and the requirements of the current *San Francisco Building Code* (see Chapter 3 of this EIR), in effect, become University policy for the reconstruction of the Parnassus Heights Campus.

II SEISMICITY BACKGROUND FOR THE BRISBANE BAYLANDS/EXECUTIVE PARK SITE

A. RELATIONSHIP OF THE CURRENT STUDY TO PREVIOUS ENVIRONMENTAL INVESTIGATIONS AT BRISBANE BAYLANDS AND EXECUTIVE PARK

1. Brisbane Baylands

No previous EIR exists for the Brisbane Baylands Site. The property was investigated by Kleinfelder, Inc., and Levine•Fricke, Consulting Engineers and Hydrogeologists, in 1992.¹⁶ The reports of those investigations, together with other soils and geo-seismic documentation, contributed to the *Tuntex Brisbane Baylands Site, Review of Potential Sites* prepared for the University by EIP Associates in April 1994.¹⁷ The 1992 reports were concerned with the state of contaminated soil and groundwater at the Brisbane Baylands Site. The 1994 reports were concerned with access and construction issues. Relevant text from these reports is summarized below.

2. Executive Park

Section I, Geology, Seismology and Hydrology, of Chapters IV, V, and VI, of the *Executive Park Development Plan Amendment Subsequent EIR* (certified 17 October 1985) is hereby incorporated by reference. Part of the project being considered in the present EIR (referred to as the Executive Park Site) would occupy a location included in the 1985 SEIR for Executive Park.¹⁸ The relevant text from the 1985 SEIR is summarized in this appendix. Updated geologic, seismic, and soils information is included in the present EIR, and is cited in the endnotes of the Geology and Seismicity chapter, as well as in the endnotes of this appendix.

B. SUMMARY OF THE RELEVANT TEXT IN PREVIOUS ENVIRONMENTAL INVESTIGATIONS AT BRISBANE BAYLANDS AND EXECUTIVE PARK

1. Brisbane Baylands

The property was investigated by Kleinfelder, Inc., and Levine•Fricke, Consulting Engineers and Hydrogeologists, in 1992. The following four paragraphs summarize the geologic information in those reports.

The Brisbane Baylands site is nearly level at about 15 feet above mean sea level. The site is divided into two portions, railyard and landfill. The landfill portion of the site (east of Tunnel Avenue) was investigated by Kleinfelder, Inc., and found to contain the following sub-surface materials:

- 5 to 15 feet of gravelly sandy silt (artificial fill);
- 15 to 40 feet of "municipal waste" mixed with sand, silt, and clay (refuse fill - includes organic household waste products, construction debris, and, possibly, industrial wastes - very compressible, subject to settlement, methane outgassing, and groundshaking damage);
- 10 to 30 feet of bay mud (compressible, subject to settlement and groundshaking damage);
- 10 to 250 feet of interbedded dense clay, silt, and sand (old alluvial sediments - friction pile support zone [see Glossary]); and

- Franciscan sandstone bedrock (hard, sound - end pile support horizon [see Glossary]).

Refuse fill, was placed on the site from 1933 through 1967, after which the site was closed to municipal wastes, and accepted only clean, artificial fill as final cover. Because the artificial fill and refuse fill were placed in reclaimed tidelands, the local groundwater level is very shallow, tidally influenced, and seasonally influenced. Groundwater quality and movement is monitored through a network of wells drilled for those specific purposes. Groundwater in the refuse fill is contaminated by various organic compounds leaching and outgassing from the fill.

The railyard portion of the site (west of Tunnel Avenue) was investigated by Levine-Fricke, and found to contain the following sub-surface materials:

- 10 feet of artificial fill;
- 30 feet of bay mud;
- 10 to 250 feet of old alluvial sediments; and
- Franciscan sandstone bedrock.

Artificial fill was placed on the site in the early 1900s for construction of the railyard. Locomotive and railcar maintenance ceased at the site in 1960, and the majority of structures and track were removed by 1989. Trenches, soil borings, and monitoring wells have encountered volatile organic compounds, metals, and hydrocarbons in the sub-soil and groundwater at the site. The local groundwater level is very shallow, tidally influenced, and seasonally influenced.

In 1994, EIP Associates prepared two reports on the entire site as part of the focussing process for the current LRDP. The following two paragraphs summarize the geologic information in those reports.

The January 1994 report establishes four criteria against which to evaluate the geo-seismic hazards of sites being considered in the focussing process. The Brisbane Baylands site is not in an Alquist-Priolo Special Studies Zone, an Aggregate Mineral Resource Sector, is not in an area designated as Important Farmland by the U.S./California Farmland Mapping and Monitoring Program, and is not subject to inundation from tsunamis. However, half the site is composed of sanitary landfill, and the entire site is underlain by a thick section of Bay mud. The site would be subject to seismically induced groundshaking of Modified Mercalli Intensity IX+ (B-Violent, on the San Francisco scale). Consequently, the site is considered questionable with regard to geologic and seismic hazard-mitigation.

The April 1994 report provided recommendations for consideration of foundation types and construction methods that could be applied to the site. Pile or deep mat foundations could be designed to avoid the settlement of the fill and the mud, and to withstand the liquefaction of the fill and the undulation of the mud, but special precautions would be required to prevent contaminated groundwater in the landfill or railyard from leaking into other aquifers.

2. Executive Park

Chapter IV. Environmental Setting, Section I. Geology, Seismology and Hydrology of the 1985 Executive Park SEIR addresses fill placement, slope stability, soil and groundwater conditions, settlement, seismic exposure, earthquake damage, and secondary earthquake hazards (ground failure). Grading, erosion control, seepage control, foundation types, and seismically induced ground failures are addressed in Chapter V. Environmental Impacts, Section I. Geology, Seismology and Hydrology. Measures to mitigate geo-seismic hazards throughout the property are discussed in Chapter VI. Mitigation Measures, Section I. Geology, Seismology and Hydrology. The inevitability of major earthquakes in the Bay area, the exacerbation of seismic effects by artificial fill and Bay Mud underlying portions of the property, and the reduction of seismic hazards through the proper use of site-specific geo-seismic information in structural design are recognized. The estimated time-frame in which a major earthquake with a local epicenter was considered likely to occur (current in 1985) was between 75 and 200 years following the April 1906 earthquake.

The Geology subsection of Chapter IV. Section I. of the 1985 SEIR provides a description of the geology of Bayview Hill (the northern portion of the property) and the Bay lowlands (the southern portion). Elevations range from between approximately 20 and 50 feet above mean sea level (msl) along the southern boundary of the site, to between approximately +260 and +400 feet msl along the northern boundary. Bayview Hill crests at about +460 feet msl.

The bedrock lithology forming the Bayview Hill portion of the property consists of Franciscan chert, sandstone/shale, and greenstone. The chert, a hard, sedimentary rock, is present in two forms: a thin-layered sequence interbedded with shale, and a massive, structureless block. Landsliding has occurred near the ridgetop where the chert/shale contacts are parallel to the slope of the hillside. A central section of softer, more permeable sandstone and shale is flanked on both sides by harder, erosion-resistant greenstone (altered volcanic rocks).

The landward side of the lowland portion of the property contains shallow artificial fill overlying 3 to 24 feet of firm soils, which, in turn, overlie bedrock. The bayward side contains 15 to 20 feet of consolidated artificial fill overlying about 10 feet of soft marsh deposits (Bay mud). Separating these two areas is a transition zone of 3 to 7 feet of fill overlying 3 to 8 feet of Bay mud, which, in turn, overlie firm soils.

Existing slope cuts at the property are fairly stable although some landslides occurred prior to grading. Several areas of natural slopes contain small-to-moderate-sized active slides, and erosion channels. Local erosion and slope failures could be triggered by heavy rains.

The Seismicity subsection summarizes the regional seismic activity and fault locations of the Bay area. Seismic groundshaking expected at the property (Modified Mercalli Intensity [see Glossary] VII to IX+), and to the potential to experience common hazards associated with earthquakes, including liquefaction (low), and subsidence (moderate) are discussed briefly.

The Hydrology subsection indicates there were no streams or lakes on the property, but that springs and seeps occurred on the upper slopes in the areas of weak, sheared rocks, and on several cut slopes in the areas of recent slides. Test borings encountered groundwater between 18 and 20 feet below the ground surface on the hillside portion of the property, and between 6 and 8 feet in the lowland portion.

The Geology subsection of Chapter V. Environmental Impacts, Section I. Geology, Seismology and Hydrology of the 1985 SEIR discusses the limiting of grading to areas below +220 feet msl, the need for appropriate erosion

control on graded slopes, and the limiting of slope gradients to retain slope stability on the property. Control of groundwater seepage, foundation designs to accommodate static settlement and expansive soils, and avoidance of landslide areas are discussed.

The Seismicity subsection states that proposed structures would be constructed to the current standards of the *San Francisco Building Code*. The possibility of seismically triggered landsliding is recognized.

The Hydrology subsection indicates the potential problems of localized groundwater seepage. Grading and subdrainage would be needed to collect surface and subsurface water, and control potential erosion.

Chapter VI. Mitigation Measures, Section I. Geology, Seismology and Hydrology of the 1985 SEIR lists thirteen measures that are included in the project to mitigate geo-seismic effects. Measures to reduce or eliminate the effects of settlement would require soil engineering investigations, appropriate foundation design, and the replacement of loose fill with compacted material (topsoil would be reused for landscaping). Seepage would be controlled by sub-drainage systems. Slopes would be cleared of loose debris, and would be sub-drained to increase stability. Future slides would be cleared and corrected immediately. To reduce erosion and improve stability, hillsides and graded areas would be replanted as soon as possible, benches would be sloped to drain away from cuts and fills, grades would not exceed 1.5:1 and would average 2.25:1. Most of the existing slides would be removed and the areas drained. Buffer zones and retaining walls would be used to protect the new structures. An interceptor drainage system would be installed and maintained along the upper slopes of the site.

C. SUMMARY OF THE GEOLOGIC CHARACTERISTICS OF THE BRISBANE BAYLANDS AND EXECUTIVE PARK SITES

1. Brisbane Baylands

The Brisbane Baylands Site is nearly level at about 15 feet above mean sea level. The Site is divided into two portions based on the sub-surface materials to be considered in the foundation design. The landfill portion of the Brisbane Baylands Site is east of Tunnel Avenue, and the sub-surface materials are described in the previous section of this appendix.¹⁹ The railyard portion of the Brisbane Baylands Site is west of Tunnel Avenue, and the sub-surface materials also are described in the previous section.²⁰ The water table would be intersected during foundation construction.²¹

The San Andreas, Hayward, and Calaveras fault zones, (4 miles southwest, 14 miles northeast, and 25 miles east of Brisbane, respectively) are historically active (during the last 200 years). The northern section of the San Andreas fault is capable of generating a maximum credible earthquake (MCE) of Richter magnitude M8.3 [see Glossary]; the Hayward and the Calaveras faults, MCEs of M7.5.²² Earthquakes of these magnitudes would be felt at the Brisbane Baylands Site, and are sufficient to create ground accelerations greater than 0.5g in bedrock and in unconsolidated deposits, which would be severe enough to cause major damage to structures, foundations, and underground utility lines.²³

The Brisbane Baylands Site is not in an Aggregate Mineral Resource Sector,²⁴ or in an area designated as Important Farmland.²⁵

2. Executive Park

The Executive Park Site was investigated by Harding-Lawson Associates, Engineers, Geologists and Geophysicists, in 1977, and 1981.²⁶ The reports of those investigations, together with similar investigations for other office buildings at Executive Park, form the basis of the geo-seismic documentation in the Subsequent EIR. The following three paragraphs summarize the information in those reports.

The Executive Park site is on the southern flank of Bayview Hill. Elevations range from about 20 to 50 feet above mean sea level (msl) along the southern boundary of the site, to about +260 to +400 feet msl along the northern boundary.

The developed portion of the site has a relatively shallow southward slope down toward the edge of San Francisco Bay and is underlain by 3 to 24 feet of firm soils over bedrock. To the south, the lowlands near the edge of the Bay are covered with 15 to 20 feet of consolidated artificial fill. Below the fill is the soft, compressible, water-saturated, silty clay marsh deposit known as Bay mud. The thickness of the mud at the site ranges from about 3 feet beneath the landward portion of the lowlands to about 10 feet on the bayward margin. In some locations the lower portion of the mud (Older Bay mud) is stiff enough to support piles, but in general, the Bay mud is unsuitable for foundation support.

To the north, the uplands of Bayview Hill are formed of Franciscan chert, sandstone/shale, and greenstone bedrock. Landsliding has occurred near the ridgetop where the contacts between the chert and the shale beds are parallel to the slope of the hillside and have been saturated by storm water. The upper surfaces of the various types of bedrock tend to be weathered and loose, but the rocks become hard and sound at depth. The massive chert and greenstone bedrock toward the edges of the site are resistant to erosion and highly stable in static and dynamic conditions. The softer, more permeable sandstone and shale near the center of the site is less erosion-resistant and may not be stable during severe seismically induced groundshaking.²⁷

D. MITIGATION MEASURES REQUIRED AT BRISBANE BAYLANDS AND EXECUTIVE PARK TO COUNTERACT GEO-SEISMIC HAZARDS, AND THEIR APPLICATION TO THE BRISBANE BAYLANDS/EXECUTIVE PARK SITE

1. Brisbane Baylands

Because the *University Policy on Seismic Safety* adopts the most stringent local code as its guidelines, the measures in the City of Brisbane Building Code (California Building Code Title 24, Part 2, CCR), in conjunction with Policy 149 Structural Improvements of the City's 1993 General Plan would become part of the UCSF LRDP project at the Brisbane Baylands site.²⁸ The Building Code encompasses the provisions for excavation, grading, slope stability, erosion control, foundation investigations, general design, and structural integrity. Policy 149 specifies that new construction and retrofitted buildings withstand seismic forces. Soils reports and engineering recommendations for structural stability are required in areas identified as prone to earth movement during seismic events (Program 149e).

2. Executive Park

The Executive Park Site is in the City and County of San Francisco's Special Geologic Study Areas for potential ground failure hazards (liquefaction, settlement). As such, the City and County requires that all new development on the Executive Park Site be preceded by special site-specific investigations to determine the type and degree of hazards present, the appropriate engineering designs to ameliorate the hazards, and the appropriateness of increasing the human population in the Special Geologic Study Areas. These studies have been completed for Office Building 3.²⁹

The *Executive Park Development Plan Amendment Subsequent EIR* provides measures (previously described) to reduce geo-seismic hazards. Because the *University Policy on Seismic Safety* adopts the most stringent local code as its guidelines, the measures in the SEIR would become part of the UCSF LRDP project at the Executive Park Site.

III BACKGROUND FOR THE HARBOR BAY SITE

A. RELATIONSHIP OF THE CURRENT STUDY TO THE PREVIOUS ENVIRONMENTAL IMPACT REPORT FOR HARBOR BAY ISLE

The Earth Sciences section of Chapter IV of the *Harbor Bay Isle, A Residential/Industrial Development on Bay Farm Island, City of Alameda, Environmental Impact Report*, 1973 is hereby incorporated by reference in the present EIR, and the relevant text is summarized in this appendix. The project being considered in the present EIR (the Harbor Bay Site) would occupy a location included in the 1973 EIR for Harbor Bay Isle, but not specifically analyzed by the 1973 document.³⁰ Updated geologic, seismic, and soils information is included in the present EIR, and is cited in the endnotes of the Geology and Seismicity chapter, as well as in the endnotes of this appendix.

B. SUMMARY OF THE RELEVANT TEXT IN THE PREVIOUS ENVIRONMENTAL IMPACT REPORT FOR HARBOR BAY ISLE

Section IV.I. Earth Sciences of the 1973 Harbor Bay Isle EIR addresses fill placement, slope stability (lagoons and levees), soil and groundwater conditions, settlement, foundation types, seismic history and seismic exposure, earthquake damage, secondary earthquake hazards (ground failure), and measures to mitigate geo-seismic hazards throughout Bay Farm Island. The inevitability of major earthquakes in the Bay area, the exacerbation of seismic effects by artificial fill and Bay Mud underlying Harbor Bay, and the reduction of seismic hazards through the proper use of site-specific geo-seismic information in structural design are recognized. The estimate (current in 1973) of the time-frame in which a major earthquake was likely to occur was about 16 percent within the 30 years following 1974.

The History of the Project Site subsection briefly describes Bay Farm Island as a diked wetland, dewatered for farming in the late 1920s or early 1930s, and artificially filled with dredged sand between November 1966 and December 1968. The fill was placed in two lifts and machine compacted to make it more dense than could be achieved by hydraulic filling alone.

The Geologic Setting subsection describes the stratigraphy at Bay Farm Island as 13 to 25 feet of fine sand and silty sand fill, underlain partially by Bay Mud (Holocene age - less than 10,000 years old), and partially by the Merritt Sands Formation (Pleistocene age - 10,000 to 1 million years old), which is indistinguishable in appearance from the sand fill. Beneath the Merritt Sands is the Older Bay Mud (Pleistocene), in turn underlain, at about 200 feet below the ground surface, by the Alameda Formation (Pleistocene) of stiff clay and silt, and dense sand and gravel. The Alameda Formation is underlain, at about 1000 feet below sea level (-1000 feet msl), by the ancient shales and sandstones of the Franciscan Assemblage (Jurassic-Cretaceous age - about 130 million years old).

The Geologic Structure subsection briefly describes the San Andreas Fault System, being the boundary between two plates of Earth's crust, and Bay Farm Island as being located between the two major fault zones (San Andreas and Hayward) of the system. There is no evidence the Island is underlain by active faults.

The Soil and Groundwater Conditions subsection states that as much as 55 feet of Bay Mud underlay the northern portion of the Island and as much as 15 feet underlay the southern portion. The central portion of the Island is underlain by Merritt Sands. The sand fill which formed the surface of the Island was monitored as it settled during each phase of development, and appropriate design refinements were made. Depths to groundwater vary between 2 and 10 feet, with normal levels ranging from 4 to 8 feet. Groundwater conditions are expected to change as the area is developed and the surrounding material is compacted. Monitoring of groundwater conditions, and appropriate design refinements would be needed through each phase of development of the Island. Driven pile foundations are recommended for structures over 6 stories high. Lightweight structures could be placed on grid or waffle foundations bearing on at least 2 feet of compacted sand.

The Seismic Exposure subsection recounts the seismic history of the Bay Area, and describes the significant faults in the San Andreas Fault System as the source of earthquakes in the Bay Area. The pattern of increasing seismic activity prior to a great earthquake is noted, as is the possibility that the Bay Area is entering another cycle of such activity. At the time (1973), the 1906 earthquake on the San Andreas Fault was the most significant earthquake to affect the area. Fallen chimneys, walls, and tanks, as well as much brick and plaster damage was reported in Alameda.

The Possible Seismic Problem Areas subsection describes the earthquake-induced hazards that probably would occur at Harbor Bay. These include moderate amounts of groundshaking; possible secondary ground failures, such as liquefaction (where fill has not been sufficiently compacted), and slope failure (where levee sides and lagoon banks are oversteep or insufficiently compacted); utility line disruption from settlement during groundshaking; and possible inundation by tsunamis. During the 100-year tsunami event there would be a 5 percent chance of inundation; during the 200-year event, a 50 percent chance.

The Recommendations subsection contains four measures to be included in the Harbor Bay Isle project to mitigate geo-seismic effects. (a) Potential liquefaction hazard would be reduced through the evaluation of groundwater levels and relative soil densities. The data would be used to establish design criteria for foundations. (b) Dynamic slope failure during earthquakes would be reduced through slope stability investigation. The data would be used to design lagoon banks and levee slopes. (c) Building areas and utility corridors susceptible to liquefaction would be re-compacted. (d) Issuance of building permits would be dependant on review and approval of the designs proposed to accomplish recommendations (a), (b), and (c).

C. SUMMARY OF THE GEOLOGIC CHARACTERISTICS OF THE HARBOR BAY SITE

The Harbor Bay Site was investigated by Hallenbeck & Associates, Geotechnical Engineering Consultants, in 1985 and again in 1990. Two reports, titled *Summary Report, Geologic and Geotechnical Conditions, Harbor Bay Business Park - Alameda* (1985), and *Soil Conditions, Harbor Bay Business Park, Alameda, California* (1990), were submitted to the Reclamation District, and Doric Development, Inc.³¹ The following seven paragraphs summarize the findings of the reports.

The UCSF project area (referred to as the Harbor Bay Site) has a nearly level to gently undulating surface, generally about 5 feet above mean sea level (+5 feet msl). The surface of the Harbor Bay Site is composed entirely of artificial sand fill, placed in a diked wetland of the Bay between 1966 and 1968, as part of the on-going filling program at Bay Farm Island.

The fill at Bay Farm Island was placed in two lifts as an hydraulic slurry of water, Bay Mud, and sand dredged from the bottom of the Bay. The upper lift uniformly consists of dense slightly cemented silty sand that was placed in layers which were compacted by driving heavy equipment over them to provide a dense surface for future development. The deeper portions of the hydraulic fill are more heterogeneous, consisting of loose silty sand, clayey and sandy silts, and soft clays. The upper surface of this lower lift is about at sea level. The total thickness of fill varies in an irregular pattern across the Harbor Bay Site, from about 6 or 7 feet in the low areas near the intersection of Loop Road and Harbor Bay Parkway, to more than 10 feet toward the center of the Harbor Bay Site.

Below the fill on the southern third of the Harbor Bay Site, is the soft, compressible, water-saturated, silty clay known as Bay Mud. The thickness of the Mud ranges between 0 feet along the centerline of the Harbor Bay Site to nearly 15 feet along South Loop Road, near the southern boundary of the Site. In some locations the lower portion of the Mud is stiff enough to support piles, but in general, Bay Mud is unsuitable for foundation support.

Below the fill on the northern portion of the Harbor Bay Site, is the Merritt Sands Formation, consisting of stiff silty clays interlayered with compact clayey and silty sands. This unit is a combination of wind-deposited and water-deposited beach and near-shore sediments. It extends beneath the Bay Mud, and may be as much as 30 feet thick. The upper surface of the Merritt Formation contains mud-filled channels making it difficult to assess its foundation-support suitability without extensive geo-technical investigations.

Old Bay Clay, a stiff marine deposit, underlies the Merritt Sands. It is between 60 and 100 feet thick, composed of medium stiff to stiff silty clays. It is suitable for foundation support.

The Alameda Formation underlies the Old Bay Clay. It is at least 800 feet thick, and composed of sands, clays, and gravel. This unit is considered to be good foundation support, and has fair to good seismic stability.³²

The Franciscan bedrock, consisting mainly of shale, and sandstone, underlies the Alameda Formation at a depth of about -1000 feet msl. The upper surface of the bedrock may be loose, but the rock becomes hard and sound at depth. The massive bedrock is very stable in static and seismic conditions, whereas the thoroughly sheared bedrock may not be stable during severe seismically induced groundshaking.³³

D. MITIGATION MEASURES REQUIRED AT HARBOR BAY ISLE TO COUNTERACT GEO-SEISMIC HAZARDS, AND THEIR APPLICATION TO THE HARBOR BAY SITE

Summary. Because the Harbor Bay Site is on Bay Farm Island, an area of potential ground failure and inundation hazards, site-specific studies are required prior to development. The City of Alameda's *Health and Safety Element* provides policies to reduce geo-seismic hazards throughout the Bay Farm Island area. Because the *University Policy on Seismic Safety* adopts the most stringent local code as its guidelines, policies adopted by the City for Bay Farm Island would become part of the UCSF LRDP project at the Harbor Bay Site. Because the Harbor Bay Site is not located on an active fault, it would not be subject to fault rupture. The Harbor Bay Site would be exposed to earthquake-related groundshaking strong enough to damage buildings and infrastructure, possibly resulting in loss of life. Groundshaking forces could cause soil and sub-surface deposits at the Harbor Bay Site to liquefy, spread, undulate, or sink, thereby damaging structures supported on them. Construction at the Harbor Bay Site could cause fill and Bay Mud to sink under the weight of structures. Corrosive soils at the Harbor Bay Site could damage structures in contact with them. The Harbor Bay Site is not high enough above sea level to be completely free of flooding by seismic sea waves, although the perimeter dikes provide protection for all but the most extreme predictable cases. Construction at the Harbor Bay Site could create wind or water erosion of sandy fill materials during excavation. Use of the Harbor Bay Site as a UCSF campus would concentrate population in a seismically hazardous area.

Soils and Geologic Studies. Parts of Bay Farm Island, where the Harbor Bay Site is located, are specified in the Element as areas where liquefaction occurred during the 1989 Loma Prieta earthquake, and, therefore, are of special concern to the City of Alameda.³⁴ Bay Farm Island is recognized in the City of Alameda's *Health and Safety Element* as an area where the potential for ground failure hazards such as liquefaction, lateral spreading, settlement, etc. is high, and where some potential for inundation hazard from tsunami or seiche exists.³⁵ As such, the City requires that new development in this area be preceded by site-specific soils and geologic investigations to determine the type and degree of geo-seismic hazards present, and the appropriate engineering designs to ameliorate those hazards.

City of Alameda's Health and Safety Element. The current (1991) *Health and Safety Element* requires that new building designs incorporate the findings of the soils and geologic investigations, as well as the Uniform Building Code Seismic Standards. Buildings three or more stories high are required to be on pile foundations that penetrate the Bay Mud to firm materials (unless geotechnical findings indicate a more appropriate design), and utilities are required to be constructed to minimize the effects of differential ground displacement.³⁶ The 1973 EIR for Harbor Bay Isle addresses these issues by including four Recommendations (listed in Section B, above) to reduce geo-seismic hazards through site investigation, construction techniques, and administrative procedures. These Recommendations predated the requirements in the current *Health and Safety Element*, and are stated in more general terms, but the intent is the same. The following paragraphs briefly describe the anticipated geo-seismic hazards and impacts at the Harbor Bay Site, and the actions required by the City of Alameda's *Health and Safety Element* to reduce, eliminate, or avoid them.

University Policy on Seismic Safety. Because the *University Policy on Seismic Safety* adopts the most stringent local code as its guidelines, the policies adopted in the City of Alameda's *Health and Safety Element* for Bay Farm Island would become part of the UCSF LRDP project at the Harbor Bay Site.

Surface Fault Rupture. The Harbor Bay Site is not in an Alquist-Priolo Earthquake Fault Zone [see Glossary], indicating that there are no known active faults crossing the Harbor Bay Site, and that there is little chance that the surface of the Harbor Bay Site would be ruptured by a fault.³⁷

Seismic Groundshaking. The San Andreas, Hayward, and Calaveras fault zones, (14 miles southwest, 5 miles northeast, and 16 miles east of the Harbor Bay Site, respectively) are historically active. The Harbor Bay Site would be subject to seismically induced groundshaking of Modified Mercalli Intensity [see Glossary] IX+ to XII from a maximum credible earthquake in the Hayward or Calaveras fault zones (M7.5) or in the San Andreas fault zone (M8.3).³⁸ After the 1989 Loma Prieta earthquake, the probability of at least one large earthquake (M7 or greater) in the San Francisco Bay region within the next 30 years was estimated at about 0.67.³⁹ Recent studies by the United States Geological Survey indicate unofficially that the probability is about 0.90.⁴⁰ On the Northern East Bay Segment of the Hayward Fault, the probability is estimated at about 0.28 that an M7 or greater earthquake would occur in this time-frame.⁴¹

To counteract the potentially destructive forces of seismically induced groundshaking, the University would implement six policies from the *Health and Safety Element*. Policy 8.1.a mandates a comprehensive geotechnical site study. Policy 8.1.b requires the adoption and enforcement of the seismic safety standards in the current Uniform Building Code as minimum standards for Harbor Bay. Policy 8.1.c requires incorporation of the recommendations of the geotechnical investigation (Policy 8.1.a) in structural design. Policies 8.1.e and g require the construction of earthquake-resistant infrastructure. Policy 8.1.i requires the City to develop a comprehensive program of public information regarding geo-seismic hazards.

Subsidence, Liquefaction and Lateral Spreading. Seismically induced ground failures expected at the Harbor Bay Site include subsidence, liquefaction, and lateral spreading. The area is susceptible to these hazards because of loose sands in the lower portion of the hydraulic fill, as well as in the Bay Mud, below the water table. Structures and foundations not designed to withstand seismic vibration, or supported on ground subject to seismically induced settlement or liquefaction, would be damaged during earthquakes.⁴² The 1990 letter report by Hallenbeck & Associates indicates the presence of potentially liquefiable material beneath the surface of the Harbor Bay Site, and their previous study (1985) defined areas of seismically induced subsidence. Liquefaction did occur at some of the building sites on Bay Farm Island during the 1989 Loma Prieta earthquake. Although little or no structural or cosmetic damage was caused, the earthquake did produce some localized settlement and some localized damage to improvements on Bay Farm Island.⁴³

Subsidence, liquefaction and lateral spreading hazards are addressed by four policies in the *Health and safety Element*. Policy 8.1.a (site-specific geotechnical studies) provides the only reliable means of locating subsidence- and liquefaction-prone soils. Policy 8.1.d specifies the use of pile foundations where soils which are inappropriate for foundation support occur. Policy 8.1.e specifies that underground utilities should be designed to compensate for differential ground movement. Policy 8.1.g specifies that building entrances, exits, and vital features be designed to accommodate settlement.

Mud Waves. The Bay Mud underlying the hydraulic fill (beneath the southern portion of the Harbor Bay Site) is compressible, is subject to settlement from its own weight and from that of additional loads imposed on it, and is subject to seismically induced undulation (mud waves). During undulation the mud deforms elastically, without necessarily causing rupture of the ground surface. Without appropriate foundation design the undulation of the mud would damage the structures supported on it, as well as disrupting the utility lines connected to the structure.⁴⁴ Bay Mud is present beneath the surface of the Site.⁴⁵

Site investigation (Policy 8.1.a) and the use of pile foundations (Policy 8.1.d) would isolate the structures from the effects of mud waves. Such features as hinged pavements and flexible utility lines would allow for movement of developed portions of the Site that were not on pile foundations (Policy 8.1.e and g).

Differential and Total Settlement. Uncompacted hydraulic fill also is subject to compression and settlement from its own weight and from that of additional loads (such as more fill or new structures) imposed on it. The safety of facilities and their occupants in such areas is dependent on foundations designed to withstand compression and settlement effects of loose fill.⁴⁶ Loose fill is present beneath the surface of the site.⁴⁷

Differential and total settlement would be compensated for by locating susceptible areas (Policy 8.1.a), and by using pile foundations (Policy 8.1.d) in conjunction with such features as hinged and flexible connections for sidewalks and utility lines, and surface drains, storm drains, and sewers designed to accommodate settlement (Policy 8.1.e and g).

Corrosive Soils. One further consideration regarding foundation design for fill is the extent to which fill materials are corrosive to untreated steel or concrete. Corrosive soils in contact with foundation elements, such as piers or footings, may weaken those elements, thus reducing their ability to support the loads placed on them. Soil treatment or replacement is necessary to eliminate corrosion hazards. The extent to which the material used as fill at the Harbor Bay Site is corrosive is not known specifically, however, Bay Mud (which formed part of the fill) is known to be corrosive.⁴⁸

Appropriate soil treatment would need to be determined on a site-by-site basis prior to beginning construction (Policy 8.1.a). Specific soil tests would need to be performed to evaluate the content of corrosive compounds such as sulfates and chlorides (Policy 8.1.a), and the recommendations incorporated in the building design (Policy 8.1.c).

Tsunami and Seiche. Available published tsunami [see Glossary] and seiche [see Glossary] models for the Bay indicate that the Harbor Bay Site is subject to 4.5 feet of wave run-up during the 100-year event, and 6.9 feet of wave run-up during the 500-year event.⁴⁹ Although most of the developable portion of the Site is at +5 feet msl, it is protected by a perimeter levee that rises to +9.5 feet msl. Only the outer surface of the levee would be affected in all but the most extreme wave run-up conditions predicted for the 500-year event at the crest of extreme high tide periods, at which time the levee would be overtopped by about 1 foot. Extreme high tide crest conditions occur about 30 times each year, and last for about 2 hours each time. The statistical probability of a 500-year tsunami or seiche reaching Bay Farm Island at the crest of extreme high tide periods is less than 2 thousandths of 1 percent. Policy 8.1.h requires the owners of shoreline properties to maintain perimeter slopes according to City standards, thus maintaining adequate tsunami/seiche protection for low-lying areas.

Erosion. If exposed and allowed to dry during the excavation and construction period, the sandy fill at the Harbor Bay Site would be subject to wind erosion. If excavation occurred during the rainy season, the exposed material could be subject to water erosion. It would be necessary to implement a program of erosion control during excavation to prevent soil loss and consequent air quality or water quality degradation.⁵⁰

Policy 8.1.h requires the owners of shoreline properties to protect perimeter slopes from wave erosion. Policy 8.1.i mandates co-operation with the East Bay Regional Park District on beach erosion control. These two measures, plus Chapter 70 of the Uniform Building Code (Excavation and Grading) direct erosion control during the construction period.

Population Concentration. Use of the Harbor Bay Site as a University campus under the guidelines of the LRDP would concentrate a portion of the San Francisco Bay Area population at a location subject to the geo-seismic hazards outlined in the above paragraphs. It is recognized that a significant percentage of the Bay Area's population already is concentrated in similarly hazardous locations, and that special structural elements required

by local building codes are routinely included to protect public safety. Nevertheless, it would be necessary to implement emergency response procedures, coordinated with the City's programs, to ensure the safety of occupants and visitors to the Harbor Bay Site.

Each of the Guiding and Implementing Policies for Geologic, Seismic, and Soils Hazards in the City of Alameda *Health and Safety Element* contributes to increasing public safety in a seismically active area. Three Policies that are specifically directed toward this goal include the establishment of a public information and education program regarding seismic safety (Policy 8.1.i), frequent amendment of the City's Uniform Building Code to deal with new development on fill, Bay Mud, and Merritt Sand (Policy 8.1.j), and the requirement that periodic earthquake and emergency fire drills be conducted (Policy 8.1.k) would further reduce safety hazards following a major earthquake.

IV BACKGROUND FOR THE MISSION BAY SITE

A. RELATIONSHIP OF THE CURRENT STUDY TO THE PREVIOUS ENVIRONMENTAL IMPACT REPORT FOR THE MISSION BAY PLANNING AREA

The Geology & Seismicity section of Volume I Chapter II of the *Mission Bay Environmental Impact Report, City and County of San Francisco, California* (SCH No. 86070113, certified August 1990) is hereby incorporated by reference in the present EIR, and the relevant text is summarized in this appendix. The project being considered in the present EIR (referred to as the Mission Bay Site) would occupy a location included in the 1990 EIR for the Mission Bay planning area, but not specifically analyzed by the 1990 document.⁵¹ Updated geologic, seismic, and soils information is included in the present EIR, and is cited in the endnotes of the Geology and Seismicity chapter, as well as in the endnotes of this appendix.

B. SUMMARY OF THE RELEVANT TEXT IN THE PREVIOUS ENVIRONMENTAL IMPACT REPORT FOR THE MISSION BAY PLANNING AREA

Section I.II. Geology & Seismicity of the 1990 Mission Bay EIR addresses settlement, foundation types, earthquakes, secondary earthquake hazards, earthquake damage, and measures to mitigate geo-seismic hazards throughout the Mission Bay planning area. The inevitability of major earthquakes in the Bay area, the exacerbation of seismic effects by artificial fill and Bay Mud underlying the Mission Bay planning area, and the reduction of seismic hazards through the proper use of site-specific geo-seismic information in structural design are recognized in the context of the Mission Bay planning area. The estimate (current in August 1990) of the time-frame in which a major earthquake is likely to occur is about 10 percent within the 20 years following 1984.⁵²

The Settlement subsection briefly describes the stratigraphy underlying the Mission Bay planning area as an artificially filled tidal inlet containing as much as 57 feet of unengineered fill (sand, clay, bricks, cinder, concrete rubble, trash) overlying 20 to 120 feet of wet, compressible Bay Mud, and 15 to 75 feet of older, more stable sediments (sandy clays and clayey sands). Depth to Franciscan bedrock ranged from 50 to 200 feet. Thicknesses of deposits and depth to bedrock increases toward the Bay. Several feet of settlement has occurred since filling began in the late 1800s, and is expected to continue at a reduced rate, causing as much as another 6 inches of total settlement during the next 30 years following 1990. Differential settlement has occurred where adjacent areas have been loaded differently or filled to different depths with compressible material. The central and eastern

portions of the Mission Bay planning area are judged most susceptible to differential settlement. Heavy loads from buildings placed directly on the fill near China Basin squeezed Bay Mud from beneath the structures into unconfined areas at the water's edge, reducing water depth, hindering navigation, and causing settlement.⁵³

The Foundations subsection briefly describes the two types of foundations that could be used in the Mission Bay planning area, and the criteria for selecting the appropriate type. Piles driven to the more stable material beneath the Bay Mud would be needed to support the foundations of structures more than 5 stories high, or where total settlement is expected to exceed 6 inches. Pile supported structures would not settle. In areas not subject to excessive settlement, 1- to 2-story structures could be supported on spread footings or stiffened slabs: compensating foundations (concrete slabs that float on a layer of engineered fill) could be used for 2- to 5-story structures. Spread footing or slab supported structures would settle at the same rate as the surrounding area.⁵⁴

The Earthquakes subsection briefly describes the San Andreas Fault System, being the boundary between two plates of Earth's crust, as the source of earthquakes in the Bay Area. The pattern of increasing seismic activity prior to a great earthquake is noted, as is the possibility that the Bay Area is entering another cycle of such activity. The most damage in San Francisco during the October 1989 Loma Prieta earthquake was caused in areas of filled land along the northern and eastern edges of the City. A maximum credible earthquake [see Glossary] in the San Andreas Fault System would produce very strong to violent groundshaking in the Mission Bay planning area.⁵⁵

The Secondary Earthquakes Hazards subsection describes the earthquake-induced ground failures that probably would occur in the Mission Bay planning area. These include liquefaction, subsidence, and lateral spreading, all resulting from seismic vibration of saturated loose soil (Younger Bay Mud) or fill. Except for the northeast corner of the Mission Bay planning area, where bedrock is exposed, all parts of the area had some potential for liquefaction and subsidence, with the greatest risk being north of China Basin Channel. The risk of lateral spreading is greatest within several hundred feet of China Basin Channel.⁵⁶

The Earthquake Damage subsection ranks various building types according to the damage they are expected to sustain during a major earthquake. Well-designed and carefully constructed buildings are not expected to collapse, but damage would range from slight, in light metal and wood frame structures, to severe, in tilt-up concrete structures. Damage is expected in all infrastructure (roads, bridges, pipelines, etc.), and access to the Mission Bay planning area is expected to be limited, particularly south of China Basin Channel. Shattering windows and falling debris are expected to be the major source of injuries or deaths, the number of casualties depending on the number of occupants in the Mission Bay planning area, and the time of day when the earthquake occurs.⁵⁷

The Mitigation Measures subsection states that measures are included in the Mission Bay planning area project to mitigate geo-seismic effects. These measures subsequently were incorporated into the *Mission Bay Mitigation Monitoring Program* (20 September 1990) as requirements for any development in the Mission Bay planning area. The content of the measures is briefly listed in the following paragraph from the main text of the present EIR, and discussed more extensively in the next section of this appendix. Implementation of these measures is the core of the mitigation program for the UCSF LRDP project at the Mission Bay Site.

Five measures to reduce or eliminate the effects of settlement would require soil engineering investigations, pile-supported or other appropriate foundations, reuse of existing piles where possible, leveling jacks or similar techniques for buildings with shallow foundations, and surcharging and draining of building sites where necessary. Basements would be constructed above the water table, thereby eliminating the need for dewatering.

Drainage systems would be designed to accommodate settlement. Corrosive soils would be located and neutralized. The then-current City building code would be the minimum standard required to withstand seismic groundshaking. Five other measures would reduce groundshaking hazards by restricting exterior building materials to less hazardous types, requiring peer review to ensure the use of state-of-the-art engineering practices, securing material and equipment in buildings under construction, requiring a certified Quality Assurance/Quality Control program for construction and materials, and requiring bracing of nonstructural building elements. Sandy soil would be compacted to reduce liquefaction potential. Automatic shut-off devices would be required on natural gas lines. Five measures would improve emergency response by requiring an emergency response plan for the Mission Bay planning area, specifying siting and design features for emergency facilities, requiring a mass care facility in the Mission Bay planning area, installing cisterns and suction hydrants for bay water to increase fire-fighting capabilities, and storing heavy equipment within the project area to provide transport, to open access, and to clear debris after a major earthquake.⁵⁸

C. SUMMARY OF THE GEOLOGIC CHARACTERISTICS OF THE MISSION BAY SITE

The Mission Bay Site was investigated by Treadwell & Rollo, Inc., Environmental and Geotechnical Consultants, and a report, titled *Proposed UCSF Site, Mission Bay, San Francisco, CA*, was submitted to Catellus Development Corporation on 31 October 1994.⁵⁹ The following seven paragraphs summarize the findings of the report.

The Mission Bay Site has a nearly level to gently undulating surface, generally about 10 feet above mean sea level (+10 feet msl), although the northeast side of the site is 8 feet or less above mean sea level. The highest point at the Mission Bay Site is nearly +25 feet msl in the southwest corner.

The surface of the Mission Bay Site is composed entirely of artificial fill, mostly unengineered, placed in a shallow inlet of the Bay between 1850 and about 1915. The thickness of fill varies from less than 1 foot (in the southwest corner) to more than 30 feet (north and northwest of the intersection of 3rd and 16th Streets), averaging about 18 to 20 feet. Much of the variation is the result of mud waves created by the initial attempts to fill the inlet.

The fill is a mixture of sand, silt, clay, bricks, cinder, concrete rubble, and trash that is irregularly distributed across the Mission Bay Site and is widely variable in its density and compaction characteristics. Two other characteristics of the fill that are of interest for construction design include shrink-and-swell potential, and corrosivity to concrete and steel. These characteristics vary widely with the nature of the fill. The fine-grained materials (silt and clay) tend to shrink and swell excessively with repeated cycles of drying and wetting, and, therefore, are inappropriate for foundation support. Some of the clay and rubble are corrosive to untreated soil or concrete, and would reduce the strength of such structural members that were in contact with them.

Below the fill is the soft, compressible, water-saturated, silty clay known as Bay Mud. The thickness of the Mud at the Mission Bay Site ranges between less than 10 feet along the 1850 shoreline (between Mariposa and 16th Streets) and nearly 70 feet along the northern boundary of the Mission Bay Site. In some locations the lower portion of the Bay Mud is stiff enough to support piles, but in general, the Bay Mud is unsuitable for foundation support.

A layer of sandy alluvium underlies the Bay Mud. Its thickness varies from less than 1 foot to more than 30 feet, and its upper surface contains mud-filled channels making it difficult to assess its foundation-support suitability without extensive geo-technical investigations.

Old Bay Clay, a stiff marine deposit, underlies the alluvial sand. It ranges from less than 1 foot to about 40 feet thick at the Mission Bay Site. The deposit consists of thick layers of dense sandy clay, and thin, discontinuous layers of sand. It is suitable for foundation support.

The Franciscan Bedrock, consisting of chert, shale, serpentine, and sandstone, underlies the Old Bay Clay. The upper surface of the bedrock is weathered and loose, but the rock becomes hard and sound at depth. Because the Mission Bay Site is on the edge of a buried valley, the elevation of the bedrock ranges from about -30 feet msl along Mariposa Street to about -130 feet between Owens and 16th Streets; it varies between -40 feet and -70 feet msl northeast of the intersection of 3rd and 16th Streets. The massive bedrock is very stable in static and dynamic conditions, whereas the thoroughly sheared bedrock may not be stable during severe seismically induced groundshaking.⁶⁰

D. MITIGATION MEASURES REQUIRED BY THE MISSION BAY PLAN TO COUNTERACT GEO-SEISMIC HAZARDS IN THE MISSION BAY PLANNING AREA AND THEIR APPLICATION TO THE MISSION BAY SITE

Summary. Because the Mission Bay Site is in the City and County of San Francisco's Special Geologic Study Areas for ground failure and inundation hazards, site-specific studies are required prior to development. The *Mission Bay Mitigation Monitoring Program* provides measures specifically formulated to reduce geo-seismic hazards throughout the Mission Bay planning area. Because the *University Policy on Seismic Safety* adopts the most stringent local code as its guidelines, the measures in the Mitigation Monitoring Program would become part of the UCSF LRDP project at the Mission Bay Site. Because the Mission Bay Site is not located on an active fault, it would not be subject to fault rupture. The Mission Bay Site would be exposed to earthquake-related groundshaking strong enough to damage buildings and infrastructure, possibly resulting in loss of life. Groundshaking forces could cause soil and sub-surface deposits at the Mission Bay Site to liquefy, sink, crack, or become elastic, thereby damaging structures supported on them. Construction at the Mission Bay Site could cause fill and Bay Mud to sink under the weight of the structures. Expansive and corrosive soils at the Mission Bay Site could damage structures supported on them. The Mission Bay Site is not high enough above sea level to be completely free of flooding by seismic sea waves, although the depth of flooding would be less than one foot in the most extreme case predictable. Construction at the Mission Bay Site could create wind erosion of sandy fill materials during excavation. Use of the Mission Bay Site as a UCSF campus would concentrate population in a seismically hazardous area.

Special Geologic Study Areas. The Mission Bay Site is in the City and County of San Francisco's Special Geologic Study Areas for potential ground failure hazards (liquefaction, settlement) and potential inundation hazards (tsunami, seiche).⁶¹ As such, the City and County requires that all new development on the Mission Bay Site be preceded by special site-specific investigations to determine the type and degree of hazards present, the appropriate engineering designs to ameliorate the hazards, and the appropriateness of increasing the human population in the Special Geologic Study Areas.

Mission Bay Mitigation Monitoring Program. The 1990 EIR for the Mission Bay planning area addresses the issues raised by the Special Geologic Study Areas for the entire Mission Bay planning area by devoting Section

15 of the *Mission Bay Mitigation Monitoring Program* to measures specifically formulated to reduce geo-seismic hazards throughout the planning area. In conjunction with other safety measures listed elsewhere in the Monitoring Program, Items K1 through K23 systematically list the actions, responsibility, and schedule in which soils, geologic, geotechnical, and seismic issues for development of any building site within the Mission Bay planning area would be addressed. The following paragraphs briefly describe the anticipated geo-seismic hazards and impacts at the Mission Bay Site, and the portion of the *Mission Bay Mitigation Monitoring Program* which would be implemented to reduce, eliminate, or avoid them.

University Policy on Seismic Safety. Because the *University Policy on Seismic Safety* adopts the most stringent local code as its guidelines, the measures in the *Mission Bay Mitigation Monitoring Program* would become part of the UCSF LRDP project at the Mission Bay Site.

Surface Fault Rupture. The Mission Bay Site is not in an Alquist-Priolo Earthquake Fault Zone [see Glossary], indicating that there are no known active faults crossing the Mission Bay Site, and that there is little chance that the surface of the Mission Bay Site would be ruptured by a fault.⁶²

Seismic Groundshaking. The Mission Bay Site would be subject to seismically induced groundshaking of Modified Mercalli Intensity VIII [see Glossary] from a maximum credible earthquake in the Hayward Fault Zone (M7.5), and to Modified Mercalli Intensities IX to XI from a maximum credible earthquake in the San Andreas Fault Zone (M8.3).⁶³ After the 1989 Loma Prieta earthquake, the probability of at least one large earthquake (M7 or greater) in the San Francisco Bay region within the next 30 years was estimated at about 0.67.⁶⁴ Recent studies by the United States Geological Survey indicate unofficially that the probability is about 0.90.⁶⁵ On the San Francisco Peninsula Segment of the San Andreas Fault, the probability is estimated at about 0.23 that an M7 or greater earthquake would occur in this time-frame.⁶⁶

To counteract the potentially destructive forces of seismically induced groundshaking, the University would implement seven measures from the *Mission Bay Mitigation Monitoring Program*. Measure K1 mandates a comprehensive site-specific geotechnical study for all structures three stories high or higher. Measure K9 requires the adoption and enforcement of the seismic safety structures in the current San Francisco Building Code as minimum standards for the Mission Bay planning area. Measures K11 considers establishing a group of qualified geotechnical and structural engineers to provide peer review for seismic design in the Mission Bay planning area. Measure K12 implements CalOSHA standards and procedures during building construction. Measure K13 requires quality assurance/quality control programs for materials and construction design. Measure K21 requires storage, within the Mission Bay planning area, of heavy equipment that could be used to clear debris and open access following a major earthquake. Measure K22 requires the construction of earthquake-resistant infrastructure.

Subsidence, Liquefaction and Lateral Spreading. Seismically induced ground failures expected at the Mission Bay Site include subsidence, liquefaction, and lateral spreading. The area is particularly susceptible to liquefaction because of the numerous sand lenses (many in the unengineered artificial fill) and sand layers (in the Bay Mud) below the water table. Structures not designed to withstand seismic vibration, or supported on ground subject to seismically induced failures would be damaged during earthquakes.⁶⁷ The 1994 letter report by Treadwell & Rollo, Inc. indicates the presence of potentially liquefiable material beneath the surface of the Mission Bay Site.⁶⁸

Subsidence, liquefaction and lateral spreading hazards are addressed by eight measures in the *Mission Bay Mitigation Monitoring Program*. Measure K1 (site-specific geotechnical studies) provides the only reliable

means of locating subsidence- and liquefaction-prone soils. Measure K2 specifies the use of pile foundations where soils which are inappropriate for foundation support occur. Measure K3 favors the use of existing piles where appropriate. Measure K4 specifies the use of leveling jacks to compensate for differential settlement, a effect of subsidence or of lateral spreading, in shallow foundations. Measure K5 specifies soil treatment to increase the density of liquefaction- or subsidence-prone soils. Measure K5b mandates reuse of excavated soils, within the Mission Bay planning area, to surcharge areas susceptible to subsidence or lateral spreading. Measure K6 recommends keeping basements and streets above the local water table to eliminate the need for dewatering, and its consequent settlement effects. Measure K15 reiterates and reinforces the requirement to increase the density of liquefaction-prone materials.

Mud Waves. The Bay Mud underlying the artificial fill is compressible, is subject to settlement from its own weight and from that of additional loads imposed on it, and is subject to seismically induced undulation (mud waves). During undulation the mud deforms elastically, without necessarily causing rupture of the ground surface. Without appropriate foundation design the undulation of the mud would damage the structures supported on it.⁶⁹ Bay Mud is present beneath the surface of the Mission Bay Site.⁷⁰

Site-specific geotechnical investigation (Measure K1) and the use of pile foundations (Measure K2) would isolate the structures from the effects of mud waves. Hinged pavements and flexible utility lines (Measures K2b and K2c) would allow for movement of developed portions of the Mission Bay Site that were not on pile foundations.

Differential and Total Settlement. Unengineered artificial fill also is subject to compression and settlement from its own weight and from that of additional loads (such as more fill or new structures) imposed on it. The safety of facilities and their occupants in such areas is dependent on foundations designed to withstand compression and settlement effects of loose (unengineered) fill.⁷¹ Loose fill is present beneath the surface of the Mission Bay Site.⁷²

Differential and total settlement would be compensated for by locating susceptible areas (Measure K1); using pile foundations (Measure K2) with hinged and flexible connections for sidewalks and utility lines (Measures K2b and K2c); reusing existing piles (Measure K3); installing leveling jacks (Measure K4); densifying soil and sandy subsurface materials (Measures K5 and K15); and designing surface drains, storm drains, and sewers to accommodate settlement (Measure K7).

Expansive and Corrosive Soils. Two further considerations for foundation design are the extent to which soils and sub-surface materials shrink and swell during repeated cycles of drying and wetting (expansion), and the corrosivity of soil materials to untreated steel or concrete. Volume changes in soils supporting or adjacent to a foundation can shift or crack portions of the foundation. Corrosive soils in contact with foundation elements, such as piers or footings, may weaken those elements, thus reducing their ability to support the loads placed on them. Soil treatment or replacement is necessary to eliminate volume change and corrosion hazards. The extent to which the material used as fill at the Mission Bay Site are subject to volume change and corrosivity varies widely with the composition of the fill.

Appropriate soil treatment would need to be determined on a building site by building site basis prior to beginning foundation construction (Measure K1), and specific soil tests would be performed to evaluate the content of corrosive compounds such as sulfates and chlorides (Measure K8).

Tsunami and Seiche. Available published tsunami [see Glossary] and seiche [see Glossary] models for the Bay indicate that the Mission Bay Site is subject to between 4.6 feet and 4.8 feet of wave run-up during the 100-year

event, and between 7.6 feet and 8.0 feet of wave run-up during the 500-year event.⁷³ Because about one-third of the Mission Bay Site is at or below the level of the maximum predicted wave run-up, it would be necessary to establish adequate flood control to meet the life-safety objectives set by the City.⁷⁴

Measure L15 mandates the protection of low-lying areas with setbacks from the water's edge. This measure is primarily intended to protect the planning area from global sea-level rises, but also provides a reasonable amount of protection for the slight flooding hazards presented by the 500-year tsunami/seiche run-up.

Erosion. If exposed and allowed to dry during the excavation and construction period, the sandy fill at the Mission Bay Site would be subject to wind erosion. If excavation occurred during the rainy season, the exposed material could be subject to water erosion. It would be necessary to implement a program of erosion control during excavation to prevent soil loss and consequent air quality or water quality degradation.⁷⁵

Measure K5a mandates dust control and erosion control for loose soil materials, and references Measures F1 and F3. These two measures direct air quality preservation during the demolition, excavation, grading, and construction periods through dust control. Measure L1 mandates the use of non-structural erosion control measures (straw bails, silt fences, etc.) for similar purposes of water quality preservation. Measures L6 requires sediment and grease traps in local stormwater intakes to reduce soil loading during the construction period.

Population Concentration. Use of the Mission Bay Site as a University campus under the guidelines of the LRDP would concentrate a portion of the San Francisco Bay Area population at a location subject to the geo-seismic hazards outlined in the above paragraphs. It is recognized that a significant percentage of the Bay Area's population already is concentrated in similarly hazardous locations, and that special structural elements required by local building codes are routinely included to protect public safety. Nevertheless, it would be necessary to implement emergency response procedures, coordinated with the City and County's programs, to ensure the safety of occupants and visitors at the Mission Bay Site.

Each of the geo-seismic measures in the *Mission Bay Mitigation Monitoring Program* contributes to increasing public safety in a seismically active area. Five measures that are specifically directed toward this goal include the establishment of a peer review group for seismic-resistant design (Measure K11); the provision of public information and education regarding safety features at the Mission Bay Site (Measure K14); the requirement that each building or complex have an emergency response plan integrated with the City's plan (Measure K17); siting and design of emergency facilities to ensure that they will remain functional following a major earthquake (Measure K18); and the construction of a mass-care facility for use in emergency situations (Measure K19). Automatic shut-off devices for gas lines (Measure K16), fire-fighting water cisterns (Measure K20), and a portable, suction-hydrant fire-fighting system stored in the planning area (Measure D6) would further reduce fire hazard following a major earthquake.

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